CAMBRIDGE SYSTEMATICS

Illiana Expressway Feasibility Study

final report

prepared for

Indiana Department of Transportation

prepared by

Cambridge Systematics, Inc.

with

The al Chalabi Group
ASC Group
Burgess and Niple
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1.0 Introduction

The Illiana Expressway Corridor has been a component of long-range plans for the bistate region since the early 1900s, first envisioned by Daniel Burnham as a vital link in an outer ring of highways encircling the Chicago region. Formerly known as the South Suburban Expressway, the corridor has shifted southward over the years as the Chicago metropolitan area has expanded geographically and available right-of-way has become more limited. Traffic volumes have increased each year on competing routes, resulting in congestion and delay that impact not only passenger travel, but also result in significant economic impacts to industries that depend on the ability to move freight within and through the region. The Illiana corridor has been included in the long-range (2030) plans of both the Chicago Metropolitan Agency for Planning (CMAP, formerly CATS) and the Northwestern Indiana Regional Planning Commission (NIRPC), as well as having been a part of both agencies' prior plans. In addition, the corridor has been addressed in several other studies listed below:

- South Suburban Freeway Study (Murphy Engineering, 1972);
- I-80/I-94 Congestion Relief Study (Wilbur Smith, 1992); and
- Northwest Indiana Corridor Study (Burgess & Niple, 2000).

Most recently, INDOT, in association with the Illinois Department of Transportation (IDOT), NIRPC and CMAP, upon being short-listed based on their U.S. DOT Phase 1 Corridors of the Future application for Illiana, submitted a more detailed Phase 2 Application on May 25, 2007. Faced with significant competition from other projects across the country, the Illiana project was not selected to proceed as a Corridor of the Future.

In late 2006, the states of Indiana and Illinois, through their respective DOTs, entered into a Bistate Agreement that provided a framework for further development of the corridor. This was followed in May 2007 by the passage of SB 105 in Indiana that enables the Indiana Department of Transportation (INDOT) to perform the feasibility study described herein that addresses the needs of the corridor, financing options, alternative routes, and impacts.

1.1 Project Description

The Illiana Expressway Feasibility Study is being performed to determine the overall viability of developing, financing, constructing, operating, maintaining and placing into service a new Interstate quality highway to be known as the Illiana Expressway (Illiana). This proposed facility would be approximately 25 to 30 miles in length, connecting I-57 in Illinois with I-65 in Indiana. As mentioned above, the current phase of the study was enabled by Indiana SB 105, which was signed into law in May 2007. The resulting study, as described herein, addresses the Illiana's ability to relieve congestion on existing routes, while promoting economic growth in the region. In addition, a major component of the project is a Traffic and Revenue Analysis to determine revenue potential, should the Illiana be constructed as a toll facility.

The study area for the Illiana Expressway Feasibility Study, as shown in Figure 1.1, extends in the east-west direction from ¼ mile west of US 45 in Will County, Illinois to the Lake County/Porter County Line in Indiana. In the north-south direction, the study area extends from ¼ mile north of US 30 to the Kankakee River in Indiana and to the eastward extension of the southernmost Will County/Kankakee County Line in Illinois. The "study area" has been defined for this study as the area in which potential alignment corridors were identified. It should be noted that a much larger area of impact, extending beyond the Illiana Study Area was included in many of the impact analyses, such as traffic related issues, socioeconomics, and economic benefits.

Figure 1.1 Illiana Study Area

The current phase of the Illiana Study also addresses project purpose and need and environmental features within the study area, which are the bases for identifying three alignment corridors. The termini for each of the three 3000' wide corridors are I-57 in Illinois and I-65 in Indiana, as stipulated in SB 105. The alignment corridors are designated as Alignment Corridor 1 (AC1) (southernmost), Alignment Corridor 2 (AC2) (middle) and Alignment Corridor 3 (AC3) (northernmost). These alignment corridors are described in more detail in subsequent sections of this report.

A specific Illiana Model was developed to perform the traffic forecasting for the three alignment corridors, based on various tolling scenarios, to support the study's Traffic and Revenue (T&R) Analysis. In addition, conceptual construction, maintenance and operating cost estimates were developed for the three alignment corridors, for inclusion in the T&R Analysis. From these analyses, financing scenarios have been developed.

Through output from the Illiana model, the environmental "red flag" analysis, economic impact tools, and a variety of other data sources, project benefits and opportunities for the three alignment corridors have been identified. This process is described in more detail in Section 9.0, with the results summarized in the evaluation matrix in Section 10.2.

An overarching element of the Illiana Expressway Feasibility Study is the project's public outreach component. This coordination effort included interviews with 21 stakeholder agencies at the Federal, state, county and regional levels. The information that was gained from these interviews provided valuable input into the study process by providing an understanding of the needs and perceptions of the interviewees. The results of the interview process are summarized in Section 3.0.

2.0 Project Purpose and Need

This section of the Illiana Expressway Feasibility Study report focuses on identifying the project's purpose and need, based on existing and future deficiencies within the study area. The analyses performed to establish the project's purpose and need are based on prior studies and data, travel demand forecasts from the Illiana Model described in Section 6, post-processors utilizing model output, and environmental impacts.

The purpose and need of the project are established according to several criteria:

- Safety, including traffic safety and emergency services and evacuation;
- Travel time and delay, including VMT, LOS, VHT;
- National, regional, and local economic issues and concerns;
- Accessibility and connectivity; and
- Consistency with regional planning.

2.1 Safety and Reliability

Traffic safety is an important consideration when reviewing the likely impact of a new or expanded transportation facility. The construction of a new expressway, such as the Illiana, can have significant impacts on traffic patterns, resulting in changes to the frequency and severity of vehicle crashes involving fatalities, injuries, and property damage. Changes to the transportation network can also impact emergency services reliant on an efficient and well-connected transportation network to safely and quickly service the public in the event of an emergency.

The following section analyzes the existing and predicted needs of the Illiana study area in the areas of traffic safety, emergency services, and network reliability.

Traffic Safety

Motor vehicle crash data are provided by the Illinois Department of Transportation (IDOT) and the Indiana Department of Transportation (INDOT). Crash instances and patterns are analyzed to identify the existing and projected safety issues within the Illiana study area.

Traffic Safety Concerns

The most significant area for concern when addressing traffic safety is the potential for drivers and passengers to suffer loss of life and well-being. According to the National Highway Traffic Safety Administration (NHTSA), 42,642 people were killed and 2.6 million people were injured in 2006 in motor vehicle crashes in the United States. Motor vehicle crashes remain the leading cause of death for ages 3-6 and 8-34, and are the overall leading cause of accidental death.[1] While national trends have indicated a slow but steady reduction in fatality and injury rates per vehicle-mile traveled over the past 40 or so years, the most recent NHTSA projections indicate the likelihood of increases in the national fatality rate in the coming years.[2]

In addition to the direct loss of life and well-being that results from motor vehicle crashes, there are significant negative economic impacts. Direct property damage, usually in the form of personal vehicle damage or public infrastructure damage, is a significant cost as are the costs of congestion created by crashes. In 2000, the economic impact of motor vehicle crashes on America's roadways reached $230.6 billion annually, or an average of $820 for each person in the United States.[3]

The contributing causes of motor vehicle crashes most frequently involve driver errors. 41 percent of all fatal crashes nationwide in 2006 involved alcohol.[4] Speeding was involved in approximately 33 percent of all fatalities in Illinois and Indiana from 2002-2006.[5] The percentage of young drivers involved in crashes is significantly higher than all other age groups, with the major contributing factors to these fatal crashes being speeding, traveling on the wrong side of the road, failing to yield, reckless driving, and drinking.[6]

Large truck crashes continue to be a significant area of concern for transportation network planners and users. The 2006 *INDOT Strategic Highway Safety Plan* considers the reduction of large truck crashes to be an Emphasis Area for safety improvement and recommends a series of enforcement and educational policies to reduce the contributing factors to large truck crashes. These contributing factors include driver fatigue, the safety conditions of large vehicles, and failure of other drivers to recognize the unique operating characteristics of large trucks. IDOT similarly considers the reduction of large truck crashes as an Emphasis Area and proposes several strategies for reduction in the *Illinois Comprehensive Highway Safety Plan* (2005).

Table 2.1 summarizes national rates for crashes by severity and vehicle type (passenger cars and large trucks). Compared to passenger cars, large trucks are

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[1] NHTSA. *Motor Vehicle Crashes as a Leading Cause of Death in the United States*, 2005.

[2] Indiana Department of Transportation. *Strategic Highway Safety Plan*, 2006.

[3] NHSTA. *The Economic Impact of Motor Vehicle Crashes*, 2000.

[4] NHSTA. *Traffic Safety Facts 2006*.

[5] Transportation Safety Planning. *Safety State Fact Sheets*, 2008.

[6] State of Illinois. *Comprehensive Highway Safety Plan*, 2005.

less likely to be involved in crashes, but crashes involving trucks are more likely to be fatal. Crash rates are generated by dividing the number of crashes associated with a roadway segment by 100 million total vehicle miles traveled (VMT) on that segment. So a crash rate of two indicates that for every 100 million VMT, two crashes were reported.

Table 2.1 National Crash Rates (2006)

Crash Severity	Passenger Car Involvement Rate per 100 MVMT	Large Truck[a] Involvement Rate per 100 MVMT
Fatal Crashes	1.49	2.12
Injury Crashes	111	36
Property Damage Only	251	134
Total Crash Rate	363.5	172.1

[a] A large truck is defined as having a gross vehicle weight rating (GVWR) of greater than 10,000 pounds.

Source: NHTSA. *Traffic Safety Facts 2006*.

Illiana Study Area

Table 2.2 shows the major area roadways[7] that were included in this safety analysis, along with their endpoints. The analyzed roadways are displayed graphically in Figure 2.1.

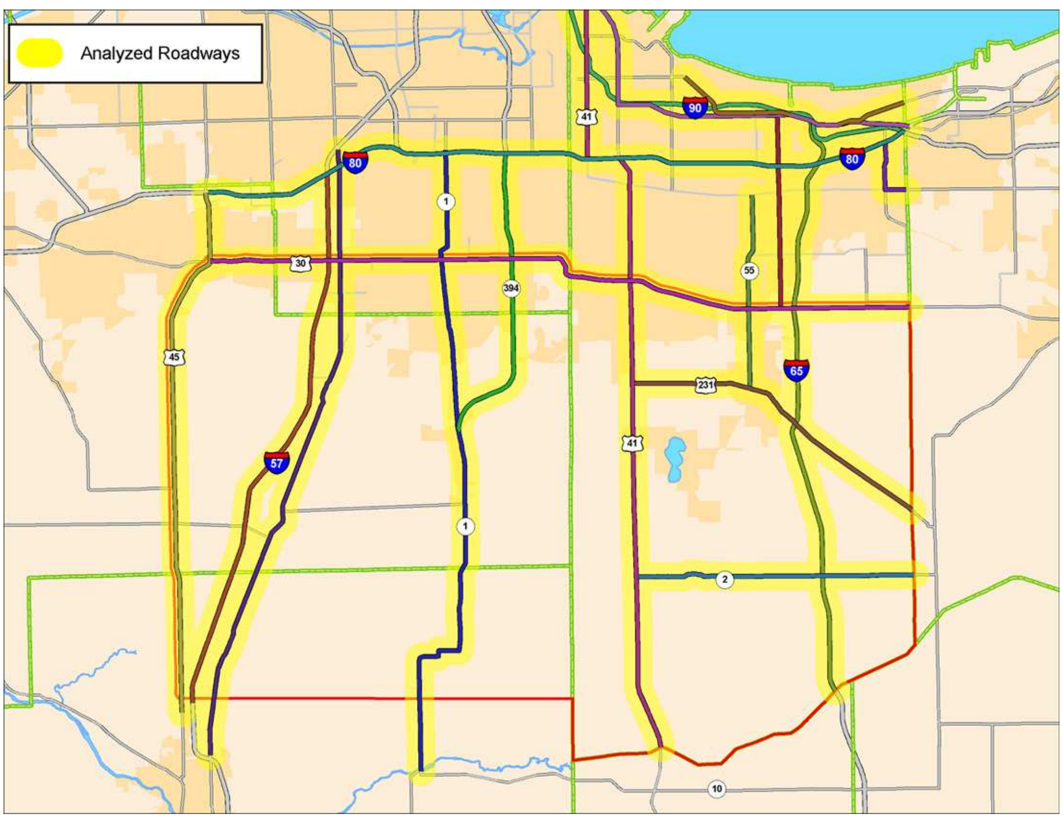
[7] In order to review the projected traffic safety impacts of the Illiana Expressway, crashes are associated with long stretches of roadway rather than using area roadways which are broken into brief segments. This allows for the accurate representation of crashes within the study area and detailed analysis of regional trends by facility without sacrificing the accuracy of the crash data. Concerns about the challenges of generating and gathering accurate crash data, specifically data with precise geographical locations, are mentioned in both INDOT and IDOT's recent highway traffic safety plans. The analyses contained in this section rely on the roadway and county coding of motor vehicle crash reports as a mechanism for location assignment rather than potentially inaccurate geographical coordinates.

Table 2.2 Roadway Endpoints

Roadway Name	Endpoints	Roadway Name	Endpoints
Cross-state			
I-80	US 45 – Lake/Porter CL	US 30	US 45 – Lake/Porter CL
Illinois			
I-57	I-80 to Bradley Exchange	IL 1	I-80 to South ISA Line
US 45	I-80 to South ISA Line	IL 394	I-80 to IL 1
IL 50	I-80 to South ISA Line		
Indiana			
I-65	I-90 - Lake/Newton CL	US 41	US 12/20 - Lake/Newton CL
I-90	IN/IL SL - Lake/Porter CL	US 231	US 41 - Lake/Porter CL
US 12	IN 912 - Lake/Porter CL	SR 2	US 41 - Lake/Porter CL
US 20	IN/IL SL - Lake/Porter CL	SR 53	I-90 – US 30
US 6	I-80 - Lake/Porter CL	SR 55	US 6 – US 231

ISA = Illiana Study Area.

Figure 2.1 Roadways Analyzed for Safety Impacts



Crash Frequencies

High crash rates are typically an indicator of safety issues. By controlling for traffic volumes (crash rates are generated by dividing crash occurrences by 100 million VMT, as mentioned above), crash rates can point out those facilities and roadway segments with disproportionately high volumes of crashes, injuries, and fatalities.

The crash rates for analyzed roadways in the Illiana study area are shown in Table 2.3 using data from 2001 through 2006 where available. The cumulative crash rates for facilities in the study area are close to the national averages, though the total fatal crash rate is significantly higher, likely reflective of the rural and high-speed nature of the roadways analyzed as well as the high percentage of large trucks operating in the area. Facilities that have total crash rates higher than the national average include US 41, US 20, US 12, IN 53, IN 55, and IL 1. The most disproportionately high fatal crash rates are found on US 12 and US 231 in Indiana.

Truck-involved crash rates track closely with the crash rates for all vehicles. However, the rate for fatal crashes involving trucks is more than twice that for all vehicles, reflective of the serious concern about truck crashes expressed in both the INDOT and IDOT highway traffic safety reports. I-80 across both states and US 41 in Indiana are notable for truck-involved crash rates that are significantly higher than the crash rates for all vehicles. Note, however, that the truck-involved crash rate presented in Table 2.3 is per **truck** VMT. The truck-involved crash rate per **all** vehicle VMT for the analyzed roadways in the Illiana study area is 39.34, significantly lower than the national average presented in Table 2.1. This is likely due to the fairly low volumes of trucks found on the facilities in the Illiana study area off of the Interstate system. Most have a truck traffic percentage of less than 10.

Crash rates for the variety of nonmajor roadways in the vicinity of potential Illiana locations (including major and minor arterials, collectors, and local roads) are not known in great detail. However, national crash rate estimates would generally range from a value of 554.8 per 100 MVMT for urban major arterials down to 146.6 for rural major arterials. Two-lane minor arterials and collectors are estimated to have crash rates of approximately 378.7 in urban areas and 163.8 in rural areas.[8]

[8] HERS Technical Report v3.54, 2002.

Table 2.3 Crash Rates for Selected Illiana Study Area Roadways

	Crashes (All Vehicles) per 100 MVMT		Truck Involved Crashes per (Truck) 100MVMT	
Facility	Total	Fatal	Total	Fatal
Cross-State (weighted averages from IL-IN)				
I-80	129.59	0.53	313.27	1.72
US 30	267.51	1.61	258.00	3.98
Indiana (annual average from 2003-2006)				
I-65	137.77	0.61	122.45	1.38
I-90	119.98	0.56	157.75	0
US 41	474.14	1.34	524.77	1.29
US 20	427.76	1.95	567.80	2.18
US 12	769.42	5.26	787.01	16.57
US 231	328.51	3.71	296.25	11.39
US 6	92.88	0	31.31	0
IN 53	545.75	2.92	343.57	0
IN 55	723.28	3.08	323.50	4.76
IN 2	310.73	2.62	655.00	13.10
Illinois (annual average from 2001-2006)				
I-57	70.04	0.90	97.28	1.31
US 45	340.03	1.31	302.08	5.21
IL 1	402.62	1.75	339.80	2.79
IL 50	307.26	1.77	227.24	7.84
IL 394	131.74	1.94	145.07	3.52
All	**372.59**	**1.99**	**387.18**	**4.73**

Crash Totals

While crash rates are useful for identifying high-risk roadway segments, the total number of crashes can be a useful indicator of where the transportation system is experiencing congestion due to the temporary loss of capacity that accompanies most crashes. Crash totals should be considered when planning roadway networks in order to limit this non-recurring congestion and the accompanying economic impacts as travelers are stuck in traffic.

Among all analyzed roadways in the study area as shown in Figure 2.1, there is an average annual crash total of about 9,000 for the years considered. Annually, about 60 of these crashes involve a fatality (roughly 0.5 percent). The average annual total for truck-involved crashes is about 1,500, with 12 being fatal (roughly 0.8 percent). Therefore, 17 percent of the crashes along the analyzed roadways involved trucks, and 20 percent of the fatal crashes involved trucks.

The highest average annual crash total of the roadways analyzed for both all vehicle crashes and truck-involved crashes occurs on I-80. The facility likewise has the highest average annual fatal crashes for both all vehicle and truck-involved crashes. Additionally, nearly 60 percent of fatal crashes involve trucks. US 30 and US 41 follow with average annual crashes of greater than 1,000 each. Crash totals generally decline as roadways fall further outside of Chicago and traffic begins to decrease.

Non-major roadways in the vicinity of potential Illiana locations (including major and minor arterials, collectors, and local roads) are estimated to be the location of approximately 15,000 motor vehicle crashes on an annual basis with about 90 fatalities occurring. Most of these are estimated to occur on urban major and minor arterials.

Table 2.4 Average Annual Crash Totals

	All Vehicle Crashes		Crashes Involving Trucks	
Facility	**Total**	**Fatal**	**Total**	**Fatal**
Cross-State (weighted averages from IL-IN)				
I-80	1,748.5	7.3	760.1	4.3
U.S. 30	1,350.5	6.3	121.8	1.3
Indiana (annual average from 2003-2006)				
I-65	623.5	2.8	133.0	1.5
I-90	321.8	1.5	74.8	0
US 41	1,152.0	3.3	102.0	0.3
US 20	547.8	2.5	65.0	0.3
US 12	256.0	1.8	23.8	0.5
US 231	177.3	2.0	13.0	0.5
US 6	22.3	0	0.5	0
IN 53	559.8	3.0	22.8	0
IN 55	469.3	2.0	17.0	0.3
IN 2	148.3	1.3	25.0	0.5
Illinois (annual average from 2001-2006)				
I-57	246.7	3.2	37.0	0.5
US 45	301.8	1.2	19.3	0.3
IL 1	499.8	2.2	40.7	0.3
IL 50	289.2	1.7	14.5	0.5
IL 394	238.0	3.5	34.3	0.8
Average Annual Total	**8952.3**	**45.2**	**1504.5**	**11.8**

Crash Severities

Crash severities can demonstrate which roadways present the highest risk for loss of life or well-being. As can be seen in Table 2.5, an average of about 0.5 percent of annual crashes on major roadways analyzed within or near the Illiana study area are fatal and about 21 percent involve an injury to one or more vehicle occupants. The distribution of crash severities is fairly constant, though some roadways, such as IL 394 and US 231 stand out as having higher fatality percentages than their peers.

Table 2.5 Average Annual Crashes by Severity – Study Area Roadways

	Crash Severities			Percentage of All Crashes		
Facility	**Fatal**	**Injury**	**PDO**	**Fatal**	**Injury**	**PDO**
Cross-State (weighted averages from IL-IN)						
I-80	7.3	253.8	1,487.5	0.4%	14.5%	85.1%
US 30	6.3	313.8	1,030.8	0.5%	23.2%	76.3%
Indiana (annual average from 2003-2006)						
I-65	2.8	88.3	532.5	0.4%	14.2%	85.4%
I-90	1.5	30.5	289.8	0.5%	9.5%	90.1%
US 41	3.3	298.0	850.8	0.3%	25.9%	73.8%
US 20	2.5	122.8	422.5	0.5%	22.4%	77.1%
US 12	1.8	58.3	193.8	0.7%	23.0%	76.4%
US 231	2.0	45.5	129.8	1.1%	25.7%	73.2%
US 6	0.0	7.0	15.3	0.0%	31.5%	68.5%
IN 53	3.0	124.8	432.0	0.5%	22.3%	77.2%
IN 55	2.0	89.3	378.0	0.4%	19.0%	80.6%
IN 2	1.3	33.8	113.3	0.8%	22.8%	76.4%
Illinois (annual average from 2001-2006)						
I-57	3.2	62.3	181.2	1.3%	25.3%	73.4%
US 45	1.2	61.8	238.8	0.4%	20.5%	79.1%
IL 1	2.2	131.5	366.2	0.4%	26.3%	73.3%
IL 50	1.7	88.7	198.8	0.6%	30.7%	68.8%
IL 394	3.5	56.0	178.5	1.5%	23.5%	75.0%
Average Annual Total	**45.2**	**1,865.8**	**7,039.3**	**0.5%**	**20.8%**	**78.6%**

Crash by Time Period

Table 2.6 shows average annual crashes within the study area by time period. About 10 percent of all crashes occur during the a.m. peak (7:00 a.m.-9:00 a.m.) and 18 percent of all crashes occur during the p.m. peak (4:00 p.m.-6:00 p.m.). The remaining 72 percent occur during off-peak hours.

Table 2.6 Average Annual Crashes by Time Period – Study Area Roadways

Facility	Crashes			Percentage of All Crashes		
	A.M. Peak	P.M. Peak	Off-Peak	A.M. Peak	P.M. Peak	Off-Peak
Cross-State (weighted averages from IL-IN)						
I-80	187.7	275.2	1,285.7	10.7%	15.7%	73.5%
US 30	120.8	270.1	964.2	8.9%	19.9%	71.2%
Indiana (annual average from 2003-2006)						
I-65	65.5	95.5	462.5	10.5%	15.3%	74.2%
I-90	33.8	46.8	241.3	10.5%	14.5%	75.0%
US 41	87.3	189.3	875.5	7.6%	16.4%	76.0%
US 20	49.8	84.8	413.3	9.1%	15.5%	75.4%
US 12	21.8	43.0	189.0	8.6%	16.9%	74.5%
US 231	17.5	35.3	124.5	9.9%	19.9%	70.2%
US 6	1.3	5.5	15.5	5.6%	24.7%	69.7%
IN 53	46.3	105.8	407.8	8.3%	18.9%	72.8%
IN 55	43.0	89.3	337.0	9.2%	19.0%	71.8%
IN 2	14.0	27.3	109.3	9.3%	18.1%	72.6%
Illinois (annual average from 2001-2006)						
I-57	25.3	37.7	183.7	10.3%	15.3%	74.5%
US 45	42.5	77.8	181.5	14.1%	25.8%	60.1%
IL 1	55.5	112.7	331.7	11.1%	22.5%	66.4%
IL 50	29.3	72.8	187.0	10.1%	25.2%	64.7%
IL 394	36.5	47.3	158.7	15.1%	19.5%	65.4%
Average Annual Total	**877.6**	**1,615.8**	**6,467.8**	**9.8%**	**18.0%**	**72.2%**

Note: A.M. Peak is 7:00 a.m.-9:00 a.m. and P.M. Peak is 4:00 p.m.-6:00 p.m.

Projected Crashes

In order to review the projected crashes occurring within the Illiana study area, the observed traffic volumes of 2005 were used to estimate traffic volumes in 2030, relying on modeled projections of VMT growth. For this projection, crash rates are assumed to be constant. In reality, crash rates change over time due to factors such as improved vehicle safety performance and safety technology advancement. In addition, more complicated factors such as congestion contribute to lower crash rates (by reducing the speed that vehicles are traveling).

Assuming crash rates are held constant, major roadways in the Illiana study area can expect to see an increase in crashes of approximately 23 percent. Fatal crashes may increase up to 29 percent. Roadways which are projected to have the highest increases in VMT show the largest increases in estimated crashes, such as IL 50 and US 231. In absolute values with current crash rates held constant, it is estimated that there will be approximately an additional 2,000 crashes occurring annually on these roadways, with 13 additional annual fatal crashes.

Again, totals represent crashes occurring on the study area's major roadways shown in Figure 2.1. These totals are not intended to include every crash in the study area, but instead serve as a comparison point for roadway safety performance over time.

The approximately 15,000 motor vehicle crashes occurring on non-major roadways in the vicinity of potential Illiana locations is projected to increase by about 36 percent by the year 2030 if crash rates are held constant. Therefore, there is a need for additional expressway capacity in the region to reduce congestion, shift VMT (particularly truck VMT) to higher classification roadways, and potentially separate trucks and autos.

Table 2.7 Projected Future Annual Crash Totals (2030) – Study Area Roadways

	All Vehicle Crashes		Crashes Involving Trucks	
Facility	**Total**	**Fatal**	**Total**	**Fatal**
Cross-State (weighted averages from IL-IN)				
I-80	2,023.1	8.2	876.3	4.7
US 30	1,538.1	9.2	150.1	2.0
Indiana (annual average from 2003-2006)				
I-65	789.8	3.5	168.5	1.9
I-90	415.7	1.9	96.6	0.0
US 41	1,447.9	4.1	128.2	0.3
US 20	647.4	3.0	76.8	0.3
US 12	303.7	2.1	28.2	0.6
US 231	236.5	2.7	17.3	0.7
US 6	26.1	0.0	0.6	0.0
IN 53	642.5	3.4	26.1	0.0
IN 55	581.3	2.5	21.1	0.3
IN 2	192.9	1.6	32.5	0.7
Illinois (annual average from 2001-2006)				
I-57	313.8	4.0	47.1	0.6
US 45	391.6	1.5	25.1	0.4
IL 1	633.3	2.7	51.5	0.4
IL 50	553.7	3.2	27.8	1.0
IL 394	300.6	4.4	43.4	1.1
Average Annual Total	11,038.0	58.1	1,817.1	15.0

Emergency Services and Evacuation

The "four Es" approach to transportation safety planning includes EMS as an essential component of a comprehensive strategy to reduce the frequency and severity of motor vehicle crashes (in addition to Engineering, Enforcement, and Education). Both of the latest INDOT and IDOT highway safety plans address the reduction of EMS response times as an important element of a comprehensive highway safety program. Both States recommend enhanced or improved 911 coverage. INDOT recommends emergency vehicle traffic signal preemption on response routes to the Interstate system.

Reduced EMS response times produce significant benefits. Primarily, crash victims receive access to critical medical services more promptly, potentially reducing the level of injury or preventing injuries from becoming fatalities. This critical response period is sometimes referred to as the "golden hour". Victims of motor vehicle crashes suffer disproportionately higher fatality rates in rural areas, such as some portions of the Illiana study area, where non-limited-access roadways have relatively high speed limits (55 mph or higher). EMS providers in rural areas will therefore have to respond to a disproportionately high number of calls where crash victims are likely to be severely or fatally injured as a result of a high-speed impact,[9] increasing the importance of a timely response throughout the region. The accessibility of an EMS facility to major roadways plays a key role in how rapidly victims are treated and whether lives can be saved. The secondary benefits of swift emergency response to crash sites include the ability of responders to clear roadways quickly, preventing secondary accidents from occurring and limiting congestion.

In addition to aiding crash victims, emergency services provide a variety of functions to citizens including preventing loss of life, wellbeing and property due to fire, crime, illness, trauma, natural disasters, and terror. Emergency services such as these are primarily concentrated in centralized facilities, such as fire and police stations, sheriff's offices, hospitals, and emergency or civil defense centers. Responders depend on a reliable, well-connected, and fast transportation network in order to serve victims as efficiently as possible.

Given all of the important functions of emergency service providers and their reliance on the transportation network, well-planned transportation network capacity improvements can have a large positive impact on the ability of emergency services to provide aid to those in need. The Illiana Expressway can provide increased accessibility and connectivity within the region, improving the safety of motorists on the road and citizens at home. Detailed results of travel time estimates for the region and how these estimates are projected to change by the year 2030 in a no-build scenario are discussed in Section 8.

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[9] U.S. DOT. *Transportation Planner's Safety Desk Reference*, updated 2008.

The importance of preparation for a necessary evacuation of population centers has grown increasingly prominent due to several events in the 21st century, including the terrorist attacks of 9/11, Hurricane Katrina, and the recent flooding of Cedar Rapids, Iowa. A well-connected transportation network of sufficient capacity is essential for enabling the safe, orderly, and timely evacuation of major urban areas, such as Chicago and northwest Indiana, should the need arise.

Emergency Service Facilities

The Illiana study area includes 60 emergency service facilities as defined by the Federal Emergency Management Agency (FEMA). These facilities are divided into four primary categories: hospitals, emergency and/or civil defense centers, fire stations, and police stations. The locations are shown in Figure 2.2, which is followed by a listing of facility names in Table 2.8.

Figure 2.2 Emergency Service Facility Locations

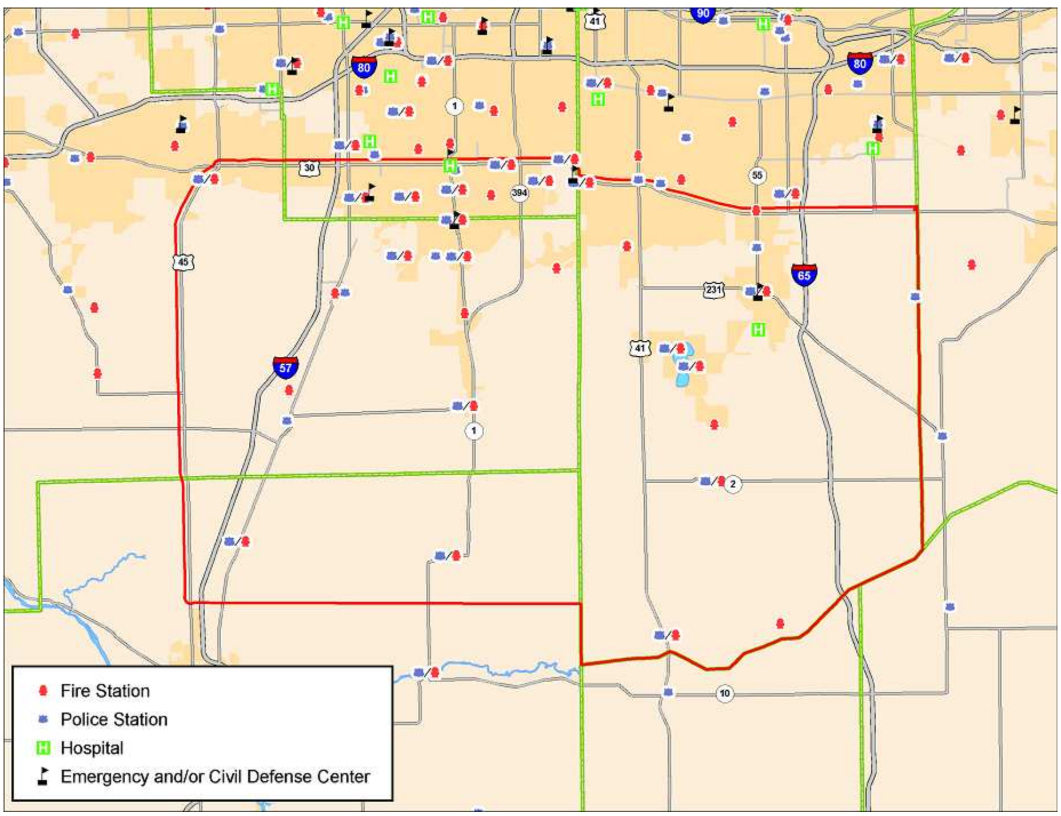


Table 2.8 Emergency Service Facilities

Facility Type	Name	City	State
Hospitals	St Anthony Medical Center	Crown Point	IN
	St James Hospital & Health Center	Chicago Heights	IL
Emergency Centers	Crown Point Civil Defense	Crown Point	IN
	Lynwood Village Emergency Service	Lynwood	IL
	Rich Twp Emergency Management	Richton Park	IL
	Steger Civil Defense	Steger	IL
Fire Stations	Cedar Lake Ambulance Service	Cedar Lake	IN
	Cedar Lake Fire Dept	Cedar Lake	IN
	Crown Point City Fire Dept	Crown Point	IN
	Dyer Fire Dept	Dyer	IN
	Fire Dept	Lowell	IN
	Hanover Fire Dept	Cedar Lake	IN
	Lowell Fire Dept	Lowell	IN
	Ross Township Fire Station	Merrillville	IN
	Shelby Fire Dept	Shelby	IN
	St John Fire Dept	St John	IN
	West Creek Township Fire Dept	Schneider	IN
	Beecher Village Fire Dept	Beecher	IL
	Crete Twp Fire Dept	Crete	IL
	Crete Twp Fire Protection Dist	Crete	IL
	Crete Village Fire Dept	Crete	IL
	Ford Heights Fire Dept	Ford Heights	IL
	Frankfort Fire Protection Dist	Frankfort	IL
	Grant Park Fire Dist	Grant Park	IL
	Lynwood Fire Dept	Lynwood	IL
	Manteno Fire Dept	Manteno	IL
	Miller Woods Fire Protection	Steger	IL
	Monee Village Fire House Mtg	Monee	IL
	Park Forest Fire Dept	Park Forest	IL
	Peotone Fire Dept	Peotone	IL
	Richton Park Fire Dept	Richton Park	IL
	Sauk Village Police Dept	Sauk Village	IL
	South Chicago Hts Fire Dept	Chicago Heights	IL
	Steger Fire Dept	Steger	IL
	University Park Fire Dept	Park Forest	IL
Police Stations	Cedar Lake Police Dept	Cedar Lake	IN
	Crown Point Police Dept	Crown Point	IN
	Dyer Police Dept	Dyer	IN
	Lake County Sheriff Bureau	Crown Point	IN
	Lakes Of Four Seasons Security	Crown Point	IN

Facility Type	Name	City	State
	Lowell Police Dept	Lowell	IN
	Schneider Police Dept	Schneider	IN
	St John Police Dept	St John	IN
	Beecher Village Police Dept	Beecher	IL
	Chicago Heights Police Dept	Chicago Heights	IL
	County Sheriff	Crete	IL
	Crete Village Police Dept	Crete	IL
	Ford Heights Police Dept	Ford Heights	IL
	Frankfort Police Dept	Frankfort	IL
	Grant Park Police Dept	Grant Park	IL
	Lynwood Police Dept	Lynwood	IL
	Manteno Village Police Dept	Manteno	IL
	Monee Village Police Dept	Monee	IL
	Park Forest Police Station	Park Forest	IL
	Peotone Police Dispatch Ctr	Peotone	IL
	Richton Park Police Dept	Richton Park	IL
	Sauk Village Police Dept	Sauk Village	IL
	South Chicago Hts Police Dept	Chicago Heights	IL
	Steger Police Dept	Steger	IL
	University Park Police Dept	Park Forest	IL

Source: FEMA HAZUS 2007.

2.2 Travel Time and Delay

One of the strongest benefits of a new roadway can be its contribution to reducing travel times and delays. In heavily congested areas, such as Northeastern Illinois and Northwestern Indiana, roadways are often at or exceeding capacity. Strategies targeted towards optimizing roadway performance (use of intelligent transportation systems to improve traffic flows, improving roadway geometrics, etc.) and shifting demand (promoting driving during off-peak hours and carpooling) can improve travel times and reduce delay, but as major metropolitan areas expand and population grows, additional capacity is needed.

The following section analyzes the existing and projected needs of the Illiana study area in relation to:

- Traffic volumes, congestion and delay; and
- System usage in vehicle miles traveled (VMT) and vehicle hours traveled (VHT).

Traffic Volumes and Congestion

The three major routes connecting northwest Indiana with the remainder of the Chicago area are I-80/I-94 (known as the Borman Expressway in Lake County, Indiana and the Kingery Expressway in Illinois), US 30, and I-90. Combined, these three routes carry an estimated 216,000 vehicles per day across the state line. The Borman Expressway in particular, which in 2003 carried an Annual Average Daily Traffic (AADT) of over 140,000 at its heaviest point, experiences severe congestion and has been identified by the State of Indiana as the number three bottleneck within the State.

Congestion is an important indicator of costly delays for passenger vehicles and freight truck movements. Figures 2.3 and 2.4 show traffic congestion levels for 2005 and projected congestion for 2030, based on volume to capacity ratios, from the Illiana Model. These projections consider both passenger and freight traffic on the roadways, using passenger car equivalent (PCE) values for non-heavy and heavy trucks. The LOS classifications displayed are determined using a volume-to-capacity (V/C) ratio, divided into the classes shown in Table 2.9.

Roadways shown in "red" are operating at volumes that are at least 80 percent of the roadway's capacity, which is considered unstable. The "orange" lines are operating at volumes that are between 70 and 80 percent of capacity, indicating that they are approaching unstable flows.

In 2005, there was severe congestion in the City of Chicago and parts of northwest Indiana as shown in Figure 2.3. The Illiana study area shows primarily stable flows, though US 30 displays a range of LOS from D to F. I-80 and I-65 show severe congestion, largely due to the significant presence of heavy truck flows.

The number of unacceptable traffic lanes in the Chicago region is projected to dramatically increase by 2030. As shown in Figure 2.4, by 2030 the congestion found in the Chicago and northwest Indiana urban areas is predicted to radiate farther out as population and employment grow. Much of the northern third of the Illiana study area is congested, particularly around Crown Point in Indiana. I-80, I-65, US 30 and portions of I-57 and IL-394 all show severe congestion, and most arterials and collectors in the northern half of the study area are also congested. Additional expressway capacity is needed in the region to meet the mobility needs of the future and relieve projected congestion.

Table 2.9 V/C to LOS Relationship

V/C	LOS	Description
0.0-0.2	A	Free Flow
0.2-0.4	B	Reasonably Free Flow
0.4-0.7	C	Stable Flow
0.7-0.8	D	Approaching Unstable Flow
0.8-1.0	E	Unstable Flow
Greater Than 1.0	F	Forced or Breakdown Flow

Figure 2.3 Illiana Study Area Existing Roadway Levels of Service (2005)

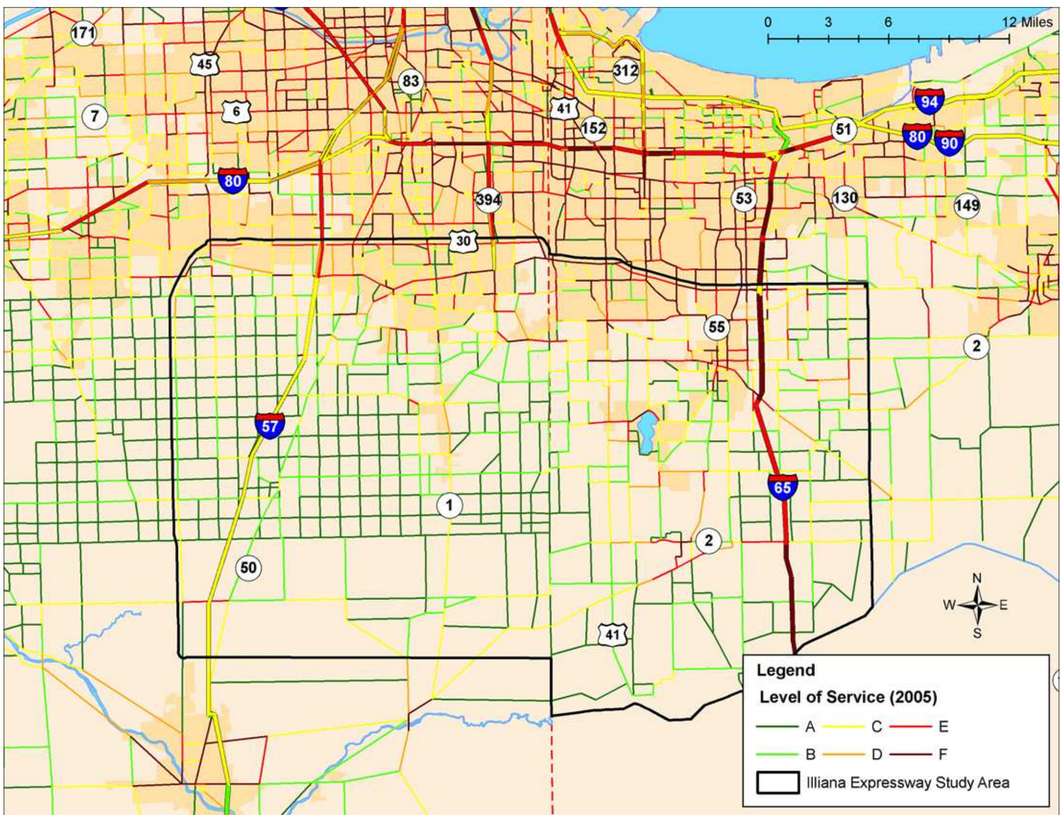
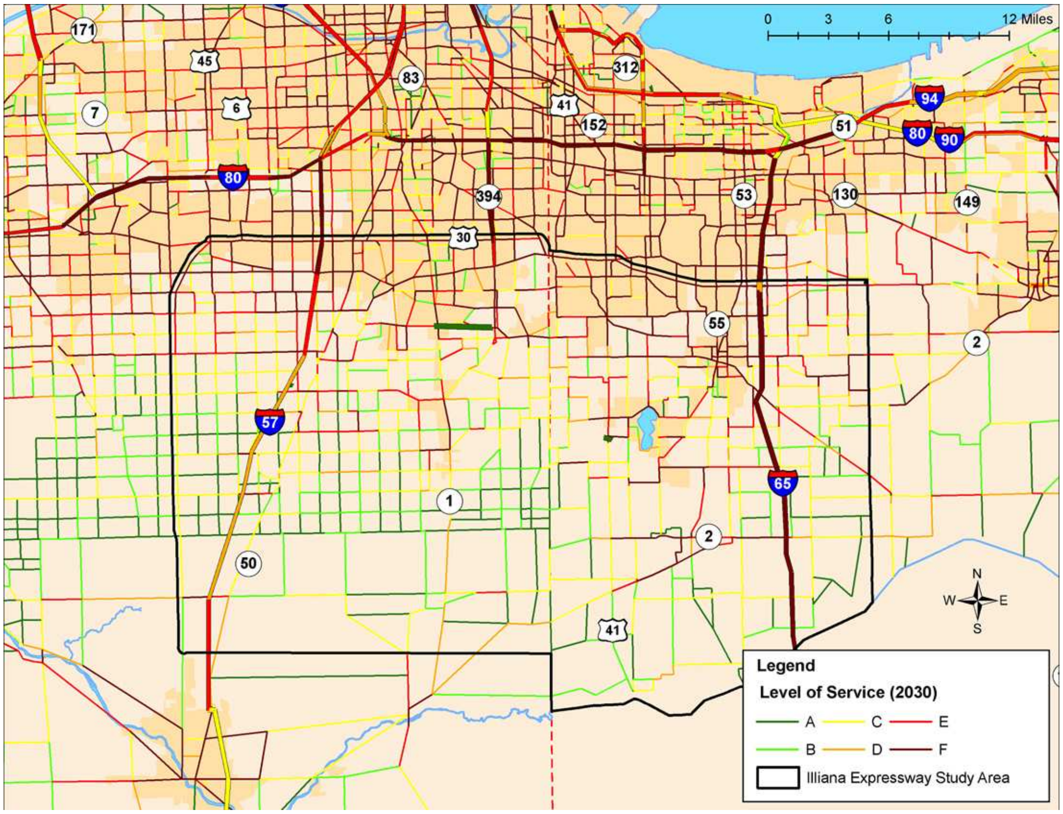


Figure 2.4 Projected Illiana Study Area Roadway Levels of Service, No Build Scenario (2030)



System Usage and Projected Growth

Using the Illiana Model, systemwide vehicle miles traveled (VMT) has been estimated for the Illiana impact area for the year 2005. Figure 2.5 shows the Illiana impact area considered in the analysis.

Figure 2.5 Illiana Impact Area

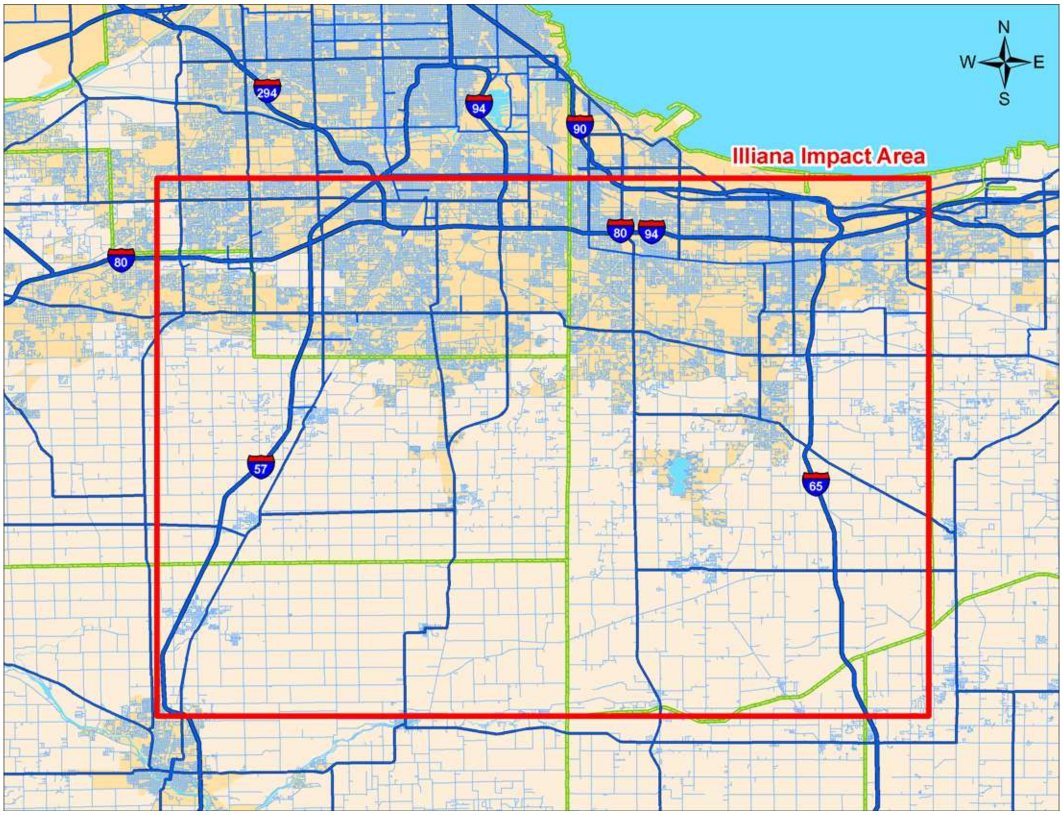


Table 2.10 shows comparisons of daily VMT for autos, non-heavy trucks and heavy trucks for 2005 based on output from the Illiana model. VMT is separated by roadway functional class and vehicle type. Growth estimates for VMT by vehicle type show that heavy truck traffic is predicted to grow significantly faster than autos and non-heavy trucks. Freeway/expressway VMT for heavy trucks is predicted to increase by more than 62 percent during the 25-year period. Regional roadways are anticipated to carry approximately 82 percent more heavy truck VMT in 2030 than in 2005.

Table 2.10 Daily VMT for Illiana Impact Area

Vehicle Type	2005	2030	% Growth by 2030
Autos			
Freeway/Expressway	4,625,000	5,091,000	10.1%
Arterials/Local	12,601,000	17,667,000	40.2%
Total	**17,226,000**	**22,758,000**	**32.1%**
Non-Heavy Trucks			
Freeway/Expressway	1,448,000	1,728,000	19.3%
Arterials/Local	1,574,000	2,459,000	56.2%
Total	**3,022,000**	**4,187,000**	**38.6%**
Heavy Trucks			
Freeway/Expressway	1,538,000	2,499,000	62.5%
Arterials/Local	229,000	417,000	82.1%
Total	**1,767,000**	**2,916,000**	**65.0%**
All Vehicles	**22,015,000**	**29,861,000**	**35.6%**

Table 2.11 shows a comparison of the daily vehicle hours traveled (VHT) by roadway class and vehicle type. As expected, the majority of VHT occurs on arterials and local roads in automobiles. Growth rates again show that heavy trucks will experience the most significant increases by 2030, more than doubling on both freeways/expressways and arterial/local roads. The area growth in VHT is estimated to be almost 64 percent.

Table 2.12 shows estimated current and projected average speeds for the Illiana impact region. Average speed can be an effective indicator of congestion. The average speed can be found by comparing the subcategories for the area's VMT (distance) to the subcategories for the area's VHT (time to travel those distances). As a point of reference, if there was no congestion in the entire Chicago region, the average speed for all vehicles in 2005 would be estimated at close to 40 m.p.h. instead of the congested average speed of 18 m.p.h. The average speed for all vehicles on all roadways in the Illiana impact area is estimated to be about 25 m.p.h. in 2005 and 21 m.p.h. in 2030. These low speeds are typical for urban areas as passenger cars on local streets tend to dominate the averages and a high percentage of roadways experience significant congestion. Average speed is estimated to drop by about 17 percent between 2005 and 2030, highlighting the need for additional transportation facilities to address congestion in this area.

Table 2.11 Daily VHT for Illiana Impact Area

Vehicle Type		2005	2030	% Growth by 2030
Autos				
	Freeway/Expressway	137,617	192,917	40.18%
	Arterials/Local	575,283	941,567	63.67%
	Total	**712,900**	**1,134,483**	**59.14%**
Non-Heavy Trucks				
	Freeway/Expressway	41,467	62,383	50.44%
	Arterials/Local	67,667	122,683	81.31%
	Total	**109,133**	**185,067**	**69.58%**
Heavy Trucks				
	Freeway/Expressway	46,433	97,433	109.83%
	Arterials/Local	9,000	19,133	112.59%
	Total	**55,433**	**116,567**	**110.28%**
All Vehicles		**877,467**	**1,436,117**	**63.67%**

The increase in VMT and VHT, and the resulting decrease in average speeds, indicates a need for new roadway options in and around the Illiana study area. The large increases of all VMT and VHT on arterials and local roads, and the 82 percent increase in heavy truck VMT and 112 percent increase in heavy truck VHT on these roads, indicate the need for more expressway capacity in the region. In addition to congestion and degraded travel times and speeds, these conditions are likely to result in numerous other impacts, such as decreased safety, increased fuel consumption and emissions, and lost economic productivity and growth.

Table 2.12 Average Travel Speeds for Illiana Impact Area in MPH

Vehicle Type	2005	2030	% Change
Autos			
Freeway/Expressway	33.6	26.4	-21.5%
Arterials/Local	21.9	18.8	-14.3%
All Roads	**24.2**	**20.1**	**-17.0%**
Non-Heavy Trucks			
Freeway/Expressway	34.9	27.7	-20.7%
Arterials/Local	23.3	20.0	-13.8%
All Roads	**27.7**	**22.6**	**-18.3%**
Heavy Trucks			
Freeway/Expressway	33.1	25.6	-22.6%
Arterials/Local	25.4	21.8	-14.3%
All Roads	**31.9**	**25.0**	**-21.5%**
All Vehicles	**25.1**	**20.8**	**-17.1%**

2.3 Economic Issues

Impacts to National Commerce

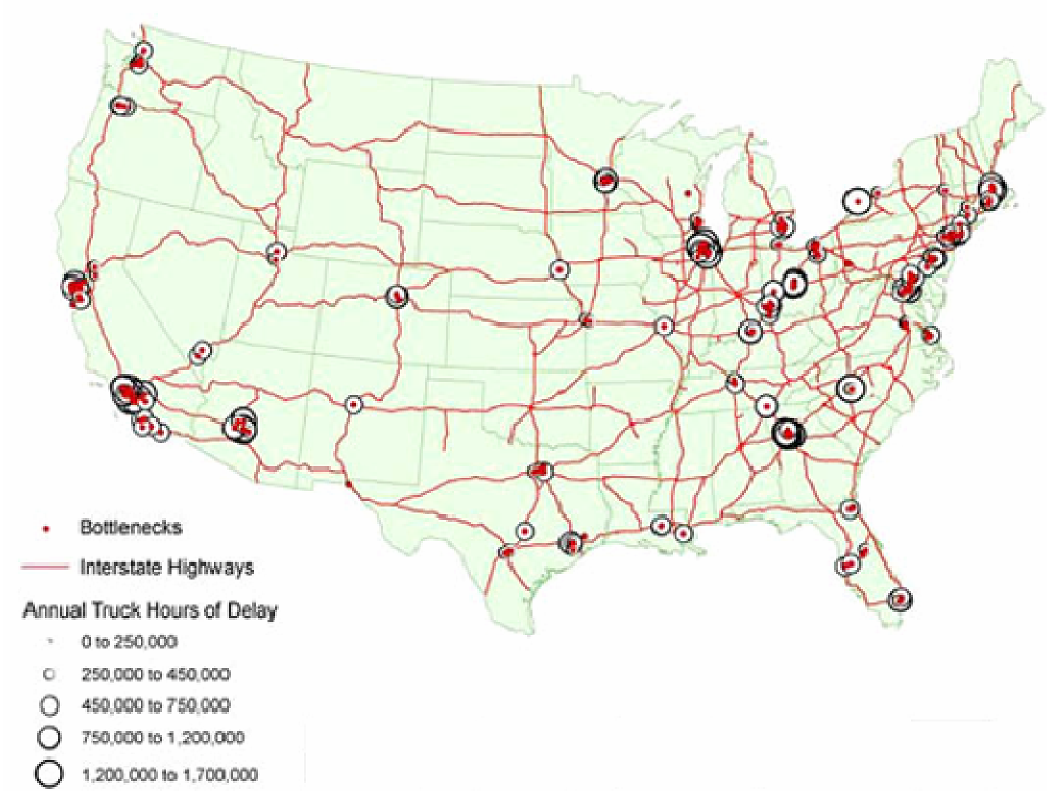
Freight transportation facilities are critical to the economic growth of the Chicago area, including Northwest Indiana. The Chicago region has more freight tonnage passing through it than any other port in the United States. Some comes and goes by plane or by ship, but the vast majority is transferred via train or truck.

The movement of freight is critical to both the national and regional economy: at different stages of the production chain goods are transported to and from distant places by different modes until they reach the final consumer. Nationwide, highway freight traffic encounters increasing road congestion, causing significant travel time delays and increasing operating costs due to more costly truck operations. Rail freight has recently begun to use up any remaining excess capacity on the nation's rail corridors and network, and the same issues of congestion, lost time, and increasing cost may begin to occur in the rail sector as well.

Predicted funding shortfalls and capacity issues over the next 30 years on the nation's rail network could potentially shift even more freight to an already heavily congested highway system. In 2003, the U.S. DOT estimated that the cost of congestion across all modes of transportation due to productivity losses, costs associated with cargo delays, and other economic impacts could be more than $130 billion per year.

Five of the top 25 highway interchange bottlenecks in the nation, measured by hours of delay, are located in the greater Chicago region (Figure 2.6).[10] Chicago is also considered by shippers to be the largest rail bottleneck in the nation. The existence of these bottlenecks is exacerbated by the large amount of freight passing through the region by both truck and rail, and the region's status as an intermodal center.

Figure 2.6 Major Freight Bottlenecks on U.S. Highways



Source: *Traffic Congestion and Reliability: Linking Solutions to Problems*, prepared by Cambridge Systematics, Inc. for the Federal Highway Administration, Office of Operations, Washington, D.C., July 2004.

Figure 2.7 shows the current and forecasted truck freight volumes passing through the Chicago area; Figure 2.8 shows the current and future rail freight volumes. The national economic benefits of the Illiana Corridor are expected to result from the volumes of longer distance freight and passenger travel that will likely experience faster and more direct travel through the Chicago region, allowing truck traffic to avoid some of the congestion and bottlenecks along the

[10] An Initial Assessment of Freight Bottlenecks on Highways, FHWA, October 2005.

Borman and to more quickly access current and proposed intermodal centers for distribution to the Midwest.

Figure 2.7 Increase in National Truck Volume, 2002-2035

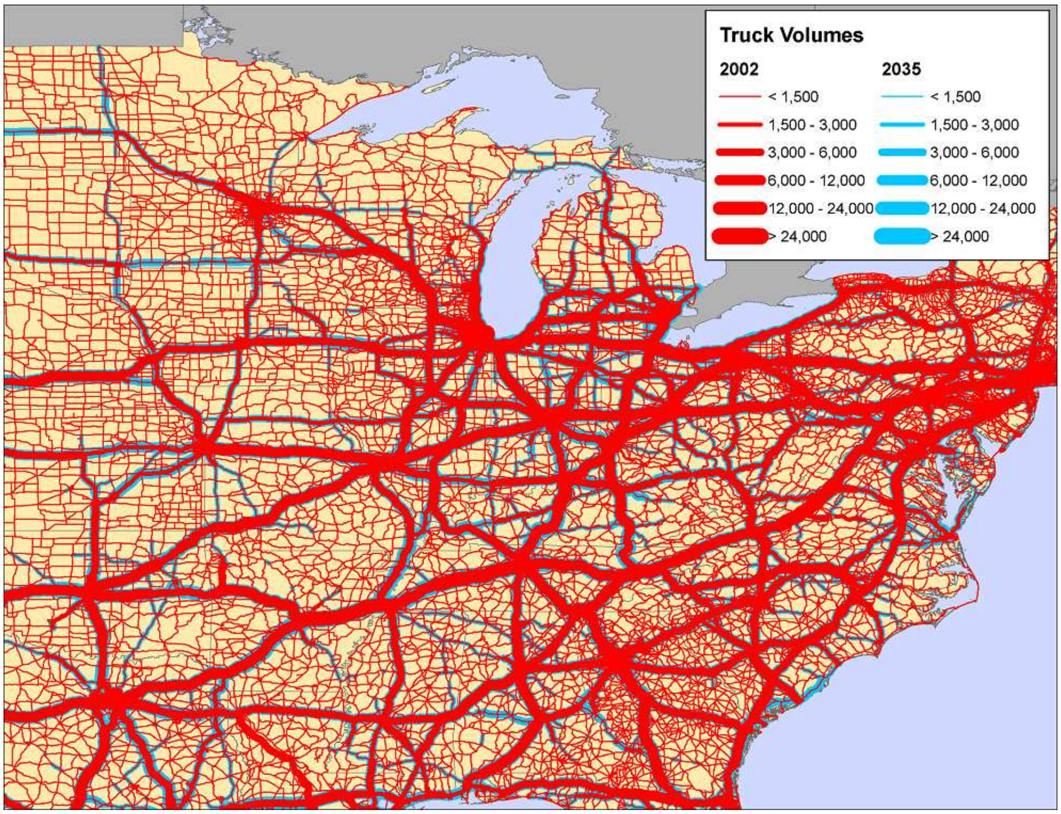
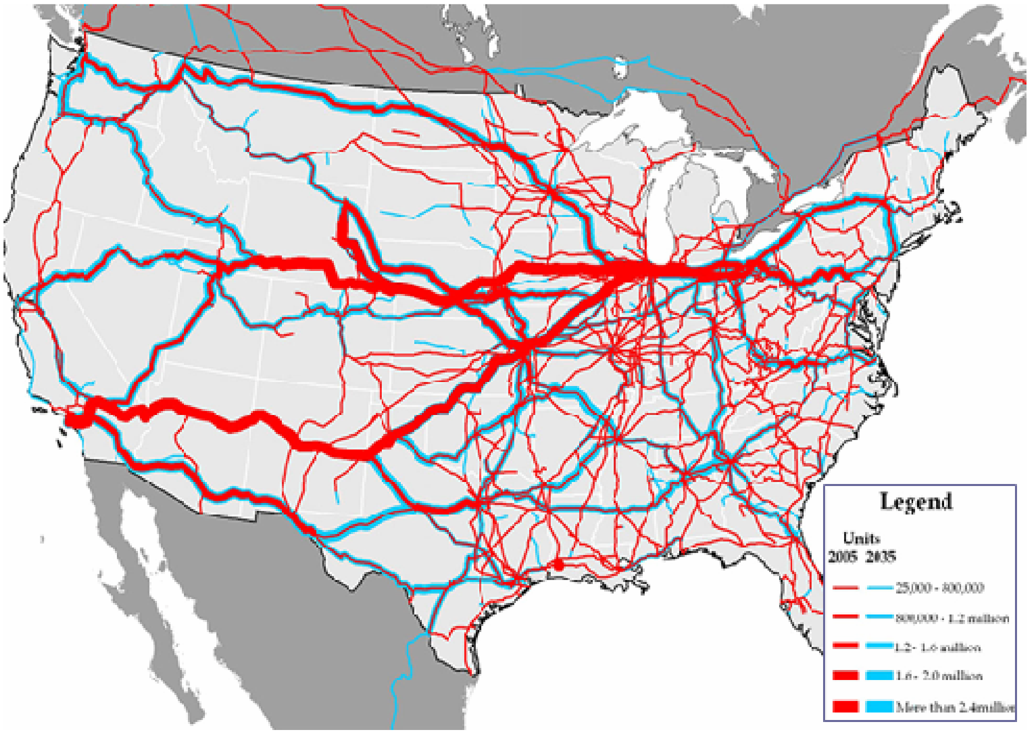


Figure 2.8 Increase in National Railcar Volume, 2005-2035



Source: Global Insight for AASHTO Freight Bottom Line Report.

Regional Economic Development

Transportation and Economic Growth

Chicago is the nation's largest freight handler and third largest internationally, but currently both rail and highway infrastructures are constrained by capacity, causing delays. Freight transportation demand is expected to increase and, therefore, so will delays: as a result, shippers will continue to seek alternative routes or modes. Increased costs and delays may cause companies to choose to locate elsewhere.

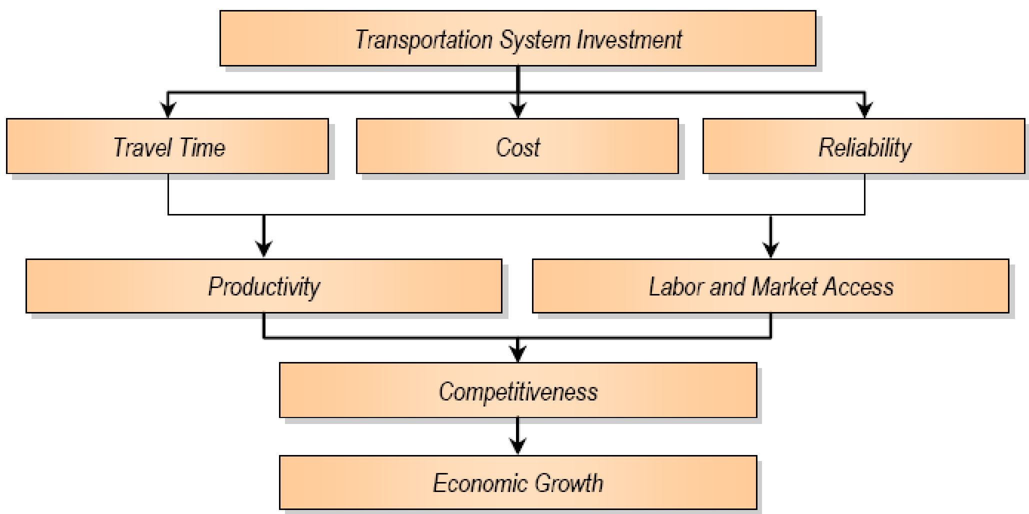
Government decision-makers have initiated numerous efforts to improve the region's competitiveness for goods movement, including the Chicago Region Environmental and Transportation Efficiency Program (CREATE), the South Suburban Mayors and Managers Association (SSMMA) Freight Study, and the Chicago Rail Economic Opportunities Plan (CREOP). Investments in transportation infrastructure as suggested by these studies can benefit the region by reducing transportation costs for regional businesses, attracting new businesses due to improved accessibility, and generating indirect and induced jobs, economic value, and tax revenues.

Transportation and economic growth are invariably linked. As shown in Figure 2.9, transportation system investments can:

- Decrease travel time;
- Decrease travel cost;
- Enhance Safety;
- Increase reliability; and
- Enhance accessibility.

These benefits in turn increase productivity and labor and market access. In addition, overall agglomeration benefits may be created by the location decisions of related businesses (i.e., manufacturers and their suppliers), and these shortened supply chains have direct positive consequences for the local region.

Figure 2.9 Linkages between Transportation Investment and Economic Development



Source: Cambridge Systematics, Inc.

Most proposals for major transportation projects have both public and private sector benefits and costs in regard to goods movement:[11]

- Carriers experience travel time, cost, reliability, accessibility, and safety benefits.
- Shippers, as the customers of carriers, experience the time savings and reliability through carriers. Shippers can ship more volume per day, at a cheaper cost per unit, with tighter scheduling.

[11] *Guide to Quantifying the Economic Impacts of Federal Investments in Large-Scale Freight Transportation Projects*, Office of the Secretary of Transportation, U.S. Department of Transportation.

- Industries and markets experience changes in the market pattern of production; distribution; and sales of supply materials, intermediate goods, and final products.

Table 2.13 shows estimates of potential benefits to the supply chain resulting from transportation cost reductions or capacity increases. A British report further estimated that a 5-percent reduction in travel time for all road-based business travel could generate about $5 billion of cost savings, which corresponds to 0.2 percent of British GDP.[12] Similar cost and productivity relationships are to be expected within the United States.

The sections below illustrate the existing conditions and growth potential of the Illiana Study Area in terms of logistics-related industries and workforces. Increased transportation capacity and access will help to maintain this vital regional economy with significant freight-based industry activity.

Table 2.13 Estimate of Supply Chain Benefits from Transportation Improvements

		Supply Chain Benefit Expressed As Percent of	
Infrastructure Benefit	Supply Chain Impact	Operating Costs	Transport Costs
10% Transport Cost Reduction	Lower material cost by substituting farther cheaper sources	0.1%	1.5%
	Consolidate plants due to extended reach	0.2%	4.1%
	Switch modes and reduce shipment size; decreasing inventory	0.1%	1.2%
10% Capacity Increase	Less safety stock	0.1%	1.1%
	Rationalization of fleet and warehouse assets	0.01%	0.3%
Secondary Effects	Increasing service levels	Not quantified	Not quantified
	Converting cost savings into price reductions	Not quantified	Not quantified
	On-demand supply chains	Not quantified	Not quantified
Total		0.5%	8.2%

Source: Guide to Quantifying the Economic Impacts of Federal Investments in Large-Scale Freight Transportation Projects.

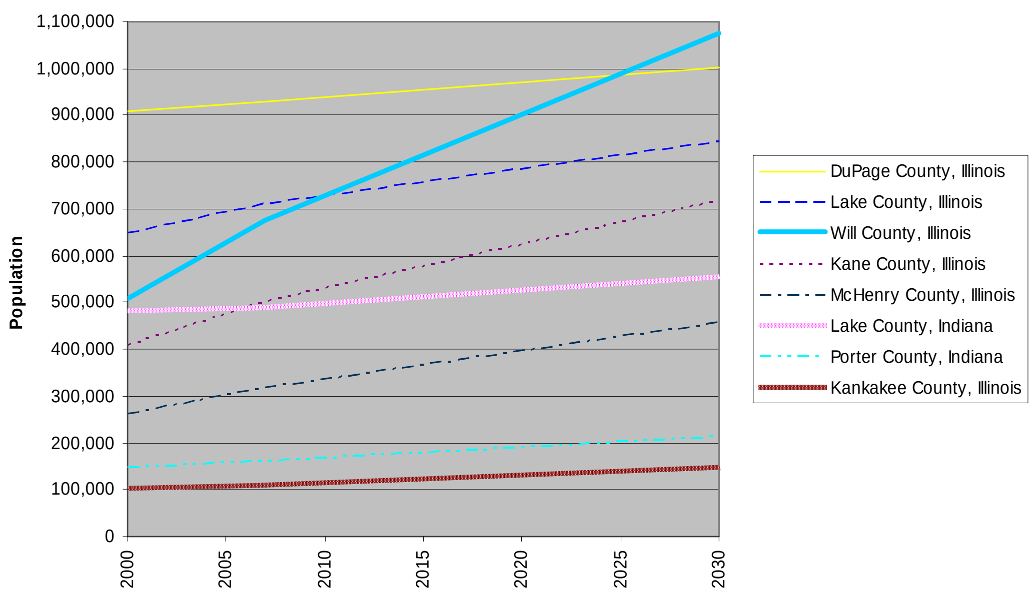
[12] The Eddington Transport Study, *Main Report: Transport's Role in Sustaining the UK's Productivity and Competitiveness*, December 2006.

Regional Economic Growth Potential

Demographics and Income

While many of the counties in the broader Chicago region have experienced increases in population over the past 10 to 15 years, it is Will County in Illinois that is growing most rapidly, with an increase of 40.6 percent between 1990 and 2000. More recent figures have demonstrated a continuation in population growth in Will County between 2000 and 2007, placing it as the fastest growing county in Illinois and one of the fastest growing counties nationally (Figure 2.10). Will County is on course to overtake Lake County, Illinois as the third most populous county in the Chicago region by 2010, and is projected to overtake DuPage County as the second most populous by 2025. Given Will County's population growth relative to the four other suburban counties, housing growth rates in Will County have recently outpaced other counties as well, fueling an increase in construction jobs in the County. Lake County, Indiana, is also continuing to grow steadily, with an anticipated population of 550,000 by 2030.

Figure 2.10 Chicago Suburban County Population Growth

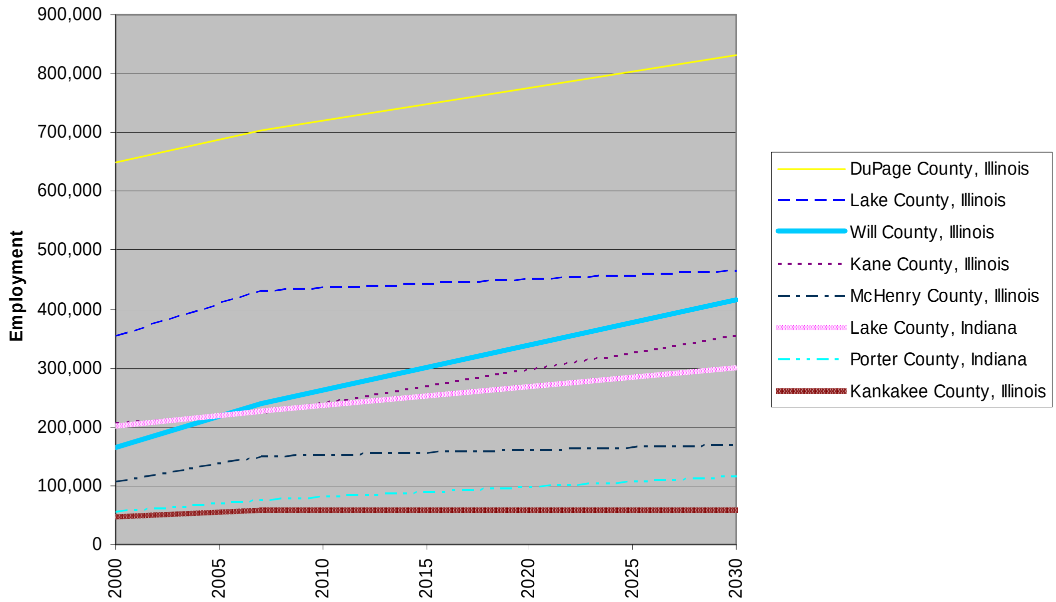


Source: U.S. Census Bureau, CMAP, NIRPC.

Employment

Figure 2.11 displays the employment growth for Chicago's suburban counties, including the three counties in the Illiana study area. Mirroring population trends, Will County is experiencing some of the fastest employment growth in the region, with the third highest number of jobs of Chicago's suburban counties. Lake County, Indiana currently has a similar number of total jobs to Will County, and is also projected to continue growing over coming decades.

Figure 2.11 Chicago Suburban County Employment Growth



Source: U.S. Bureau of Economic Analysis.

Industry Profile

As a region, the economies of the Midwest and the Illiana study area, more specifically, have experienced modest growth in recent years, with the management services, real estate, wholesale trade, and accommodation and food service sectors leading the way. Most significantly, the industry mix of the study area economy is heavily represented by freight-transportation industries. As shown in Table 2.14, the Will County economy has a higher concentration of economic activity than the U.S. average in five of the most freight-intensive industries: construction, manufacturing, wholesale trade, retail trade, and transportation and warehousing. Lake County exceeds the national averages in all of these industries except wholesale trade, while Kankakee County exceeds them in all but construction. Much of this relates to the huge freight-related industry activity in nearby Chicago, and highlights the importance of efficient goods movement in this region of the country.

Table 2.14 Industry Employment Share by Industry Sector for 2007

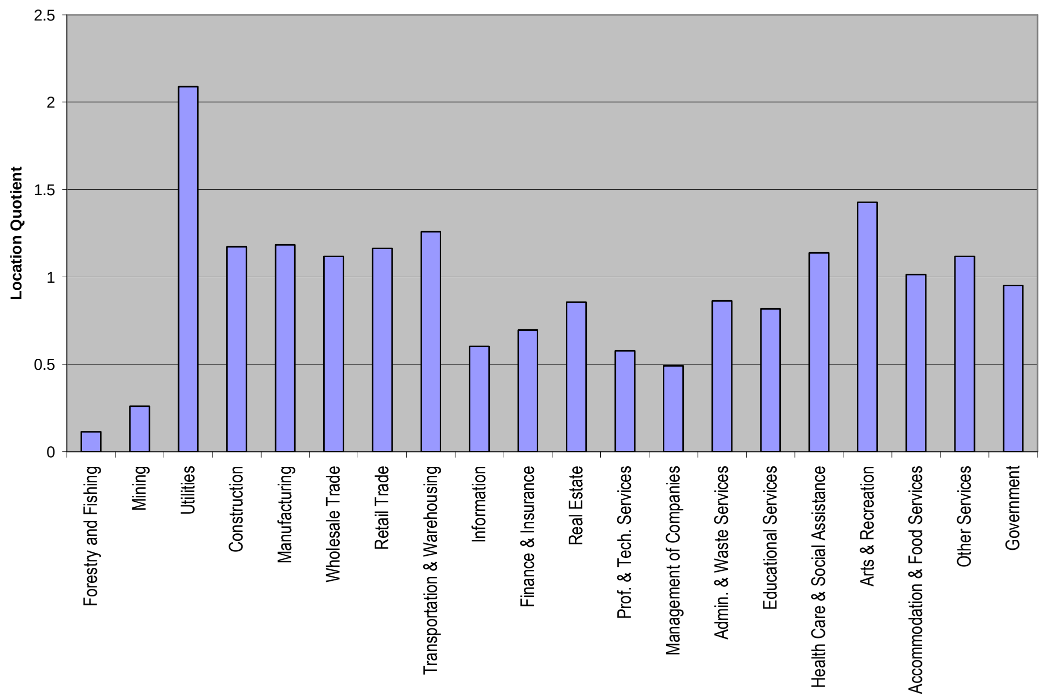
Industry	National	Will County	Lake County	Kankakee County
Forestry, Fishing, and Other Related Activities	0.57%	0.10%	0.04%	NA
Mining	0.55%	0.17%	0.14%	NA
Utilities	0.32%	0.79%	0.66%	0.23%
Construction	6.54%	8.71%	7.10%	5.17%
Manufacturing	8.15%	8.42%	10.77%	9.70%
Wholesale Trade	3.74%	5.38%	2.92%	4.25%
Retail Trade	10.83%	12.27%	12.54%	13.93%
Transportation and Warehousing	3.31%	4.07%	4.05%	4.93%
Information	1.99%	1.47%	0.89%	1.24%
Finance and Insurance	4.73%	3.59%	2.83%	3.94%
Real Estate and Rental and Leasing	4.57%	4.25%	3.75%	2.97%
Professional and Technical Services	6.66%	4.56%	3.92%	NA
Management of Companies and Enterprises	1.10%	0.44%	0.75%	NA
Administrative and Waste Services	6.28%	5.75%	5.02%	5.55%
Educational Services	2.15%	1.81%	1.48%	2.73%
Health Care and Social Assistance	10.22%	8.74%	13.65%	15.20%
Arts, Entertainment, and Recreation	2.10%	2.75%	3.57%	1.38%
Accommodation and Food Services	6.88%	6.78%	7.14%	6.76%
Other Services, except Public Administration	5.69%	6.15%	6.58%	6.18%
Government and Government Enterprises	13.62%	13.79%	12.19%	12.17%

Source: U.S. Bureau of Economic Analysis.

NA: Data not available due to privacy concerns.

Figure 2.12 presents industry concentrations for the Illiana Study Area (Will, Lake, and Kankakee Counties) for 2007 in terms of location quotients compared to the United States. Industries with location quotients (LQ) above 1.0 indicate a relative strength or concentration of economic activity and those below 1.0 represent a relative under representation of economic activity. The industries with the highest LQs are utilities and arts, entertainment, and recreation. Utilities typically require a large volume of truck and rail activity, while the arts and recreation are more passenger- and tourist-oriented. The heavier trade industries such as manufacturing, construction, and warehousing are all above 1.0 while some of the less transportation intensive service industries (finance, professional, and education services) are well below 1.0.

Figure 2.12 Location Quotients for Will, Lake, and Kankakee Counties



Source: U.S. Bureau of Economic Analysis.

Representing 10 percent of the entire workforce and over 53,000 jobs in 2007, the manufacturing sector is the fourth largest sector within the corridor economy after government, healthcare, and retail trade. The most common types of manufacturing include the production of plastics and plastic products, the assembly of automobile parts and welding materials, and the fabrication of cabinets and electronic components. Table 2.15 shows the number of jobs in the manufacturing, retail trade, and the transportation and warehousing industries within the Study Area and nationally.

Table 2.15 Number of Jobs for the Manufacturing, Retail Trade, and Transportation and Warehousing Industries for 2007

Industry	National	Will County	Lake County	Kankakee County
Manufacturing	14,512,000	21,030	26,842	5,266
Retail Trade	19,282,000	30,630	31,246	7,563
Transportation and Warehousing	5,887,700	10,158	10,091	2,675
Total (All Sectors)	180,943,800	250,975	249,824	55,690

Source: U.S. Bureau of Economic Analysis.

The transportation and warehousing sector (which includes trucking companies, freight rail, and other distribution activity) has seen considerable growth, with a 23 percent increase in jobs between 2003 and 2007. A region's economy depends on the ability to move freight and goods; especially one that sustains sectors heavily dependent upon transportation infrastructure.

Market Accessibility

Regional economic impacts resulting from investments in transportation infrastructure can be substantial, especially as the study area has a large concentration of transportation-dependent industries which can benefit from reduced travel and logistics costs, improved connectivity to suppliers, and increased accessibility to markets and multimodal facilities.

The Illiana study area contains or is within close proximity to a number of existing or proposed air facilities, rail operations, and regional intermodal centers. However, many of these facilities are not interconnected. Currently, the existing highway network provides a number of north-south movements along I-57, IL 50, IL 1, US 41, SR 55, and I-65, but very few east-west options exist (Refer to Section 2.4 for more information on accessibility and connectivity needs in the study area). Today's increasingly global economy places emphasis on efficient connections between modes and between businesses and transportation facilities; limitations in these connections could stunt the potential economic growth in the region.

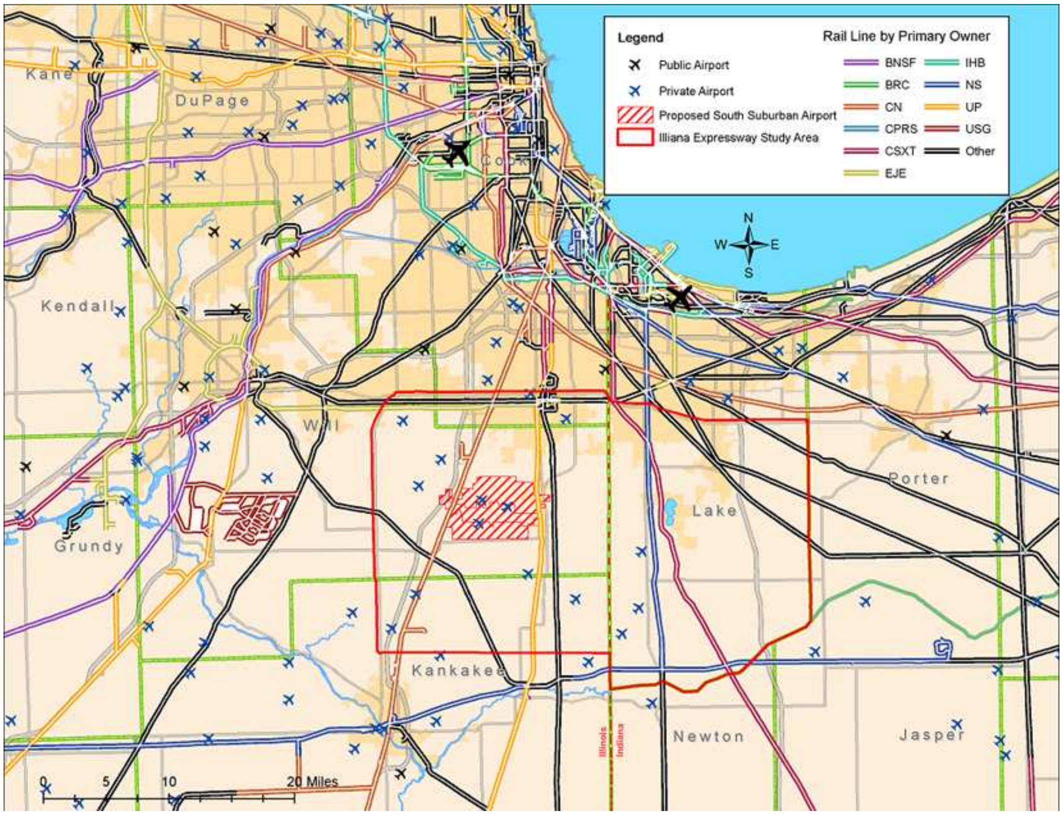
Airport Facilities

Currently, 18 airports, smaller airfields or landing strips, or heliports are scattered about the study area, primarily in Illinois. For the most part, airport facilities are accessible by local or state roadways alone.

Just north of the study area, Gary Chicago International Airport is located three miles northwest of Gary, Indiana, and is publicly owned and operated. The airport averages 123 aircraft daily, including jet aircraft. 190 tons of cargo passed through the airport in 2007.

In an attempt to reduce runway and terminal congestion at O'Hare International Airport and Chicago Midway International Airport, a South Suburban Airport (SSA) has been in development since the mid-1980s. The proposed airport would be designed to accommodate larger planes, and would serve as an additional major airport in the Chicago metropolitan area. If completed, the SSA facility would provide increased air freight capabilities and intermodal connections for distribution throughout the region. The proposed project currently is anticipated to be sited on land located between I-57 and IL 1, providing high levels of accessibility to the north and south (shown in Figure 2.13). Currently no major east-west roadways exist connecting the proposed SSA to Lake County, Indiana and I-65.

Figure 2.13 Illiana Study Area Air and Rail Transportation Infrastructure



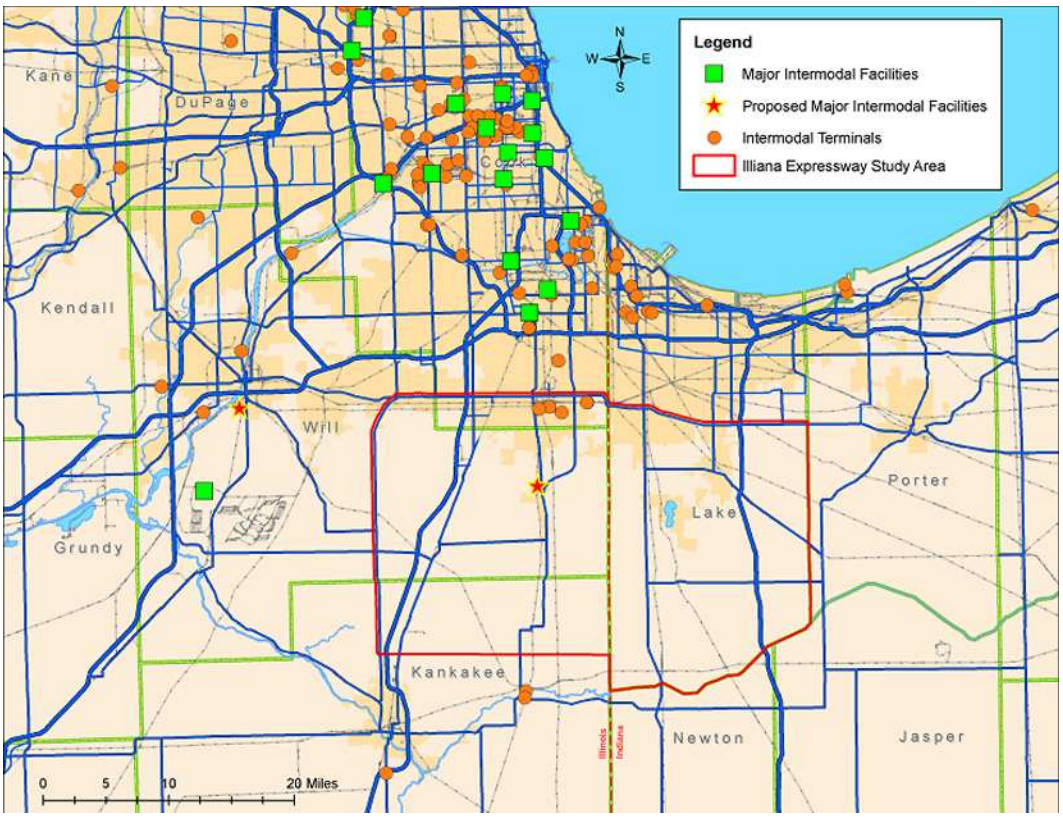
<u>Rail/Intermodal Freight Facilities</u>

As shown in Figure 2.13, five active freight rail lines currently operate within the Illiana study area. The lines provide north-south connections between Chicago and St. Louis and Indianapolis, as well as east-west connectivity via the EJ&E line, acquired by CN at the beginning of 2009. A major intermodal distribution center is located in Elwood, a village about 15 miles to the west of the study area in Will County (Figure 2.14). The center includes both a truck/rail intermodal facility and an industrial park; it already has shown significant economic impacts for Will County during its more than six years of construction and five years of operation. According to the Will County Center for Economic Development, the Intermodal Center, known as "Logistics Park Chicago", is one of the largest distribution centers in North America. Occupying 3.4 million square feet, the facility provides intermodal distribution and warehousing capabilities to eight companies, including Wal-Mart, Georgia Pacific, DSC Logistics, and the Potlatch Corporation. The Wal-Mart facility alone employs over 1,000 individuals.

The potential exists to develop new intermodal facilities within the corridor, as well as provide additional flexibility to existing rail freight operations and intermodal distribution centers. One such facility has been proposed and currently is in the early development stages along the UP/CSX rail line in the

Village of Crete. This proposed 850-acre intermodal yard would be located in close proximity to the IL 1/IL 394 intersection. Another similar facility has been proposed in Joliet, 15 miles to the west of the study area. The development of Will County as an "inland port" has created additional stress on the roadway network, particularly south of I-80 where major east-west roadways are scarce. As rail/truck intermodal activities increase, including associated logistics facilities such as distribution centers that often locate near these intermodal centers, the roadway network will become increasingly strained. Will County's potential for future growth in this sector could be hindered by decreasing truck accessibility and mobility.

Figure 2.14 Intermodal Facilities within and Near the Illiana Study Area



Source: Chicago Metropolitan Agency for Planning, 2006 and 2008 National Transportation Atlas Database, U.S. Bureau of Transportation Statistics.

2.4 ACCESSIBILITY AND CONNECTIVITY

Accessibility and connectivity are closely related needs for transportation system users. Accessibility, when describing a roadway system, refers to the ability for a variety of users with differing needs to get to or from an area. A highly accessible system would serve the transportation needs of users looking to make short or long trips to varied destinations (e.g., work, school, shopping, entertainment). Connectivity, when describing a roadway system, refers to the number and quality of roadway options available for travel between points. A well-connected system will provide the user with several reliable, direct options to reach their destination.

East-west connectivity in the Illiana study area is limited, as can be seen in Figure 2.15. There are no major east-west roadways which link I-65 and I-57 south of US 30. The roadways which link east-west flows south of US 30 are typically two-lane rural connectors. They frequently stop at the state line, requiring drivers to diverge north or south to continue into the adjacent state. A sample of this is shown in the inset of Figure 2.15 which highlights the paths drivers need to take to move east-west near 197th Avenue in Indiana and E. 9000N Road in Illinois.

Figure 2.15 Study Area Connectivity

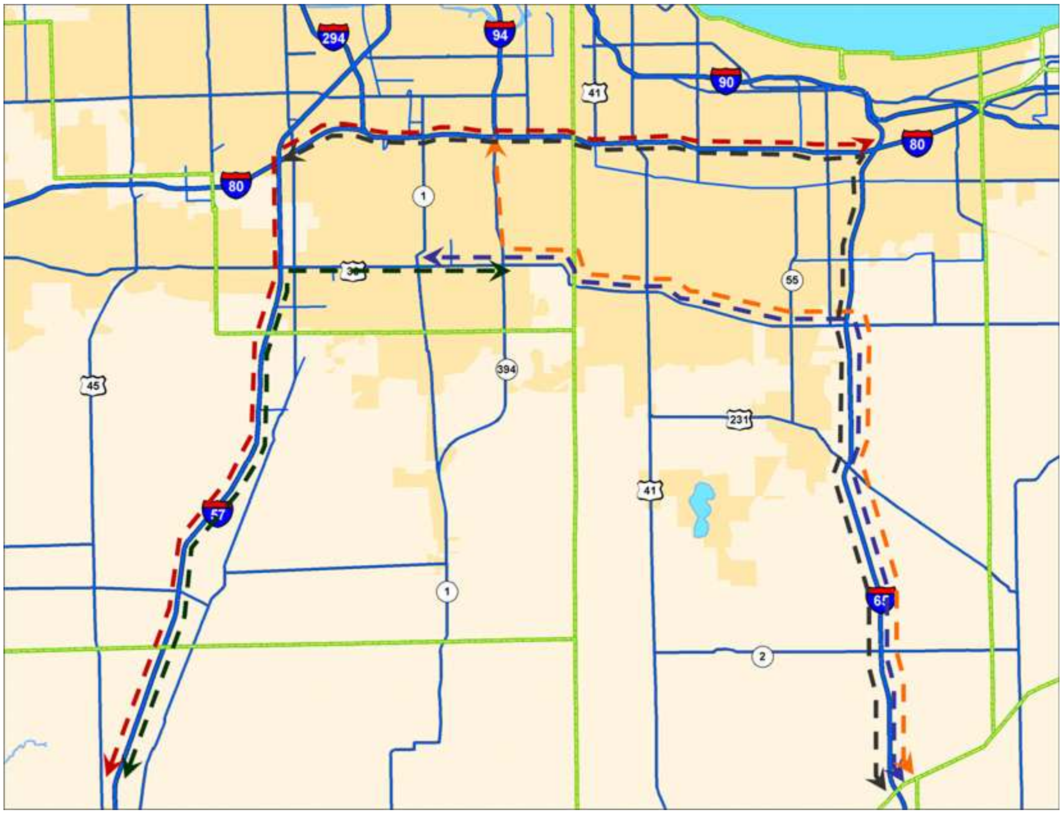
Due to the lack of major facilities linking I-65 and I-57 south of US 30, east-west traffic flows converge on US 30, leading to congestion and delays. Travel times on US 30 between I-57 to I-65 are anticipated to increase by around 23 percent for both eastbound and westbound traffic from the present to 2030. Table 2.16 shows additional estimated travel time increases based on the Illiana model.

Table 2.16 Estimated Changes in Travel Times for Major Study Area Facilities

Facility	Endpoints	Direction	Observed 2008 Travel Time	Estimated 2030 Travel Time	Estimated Change in Congested Travel Time from Base to 2030
I-57	I-80 - IL 9 (Mantero)	SB	24.3 min	28.1 min	15.6%
		NB	23.7 min	27.9 min	17.6%
I-65	I-80 to Kankakee River	SB	24.1 min	30.6 min	26.9%
		NB	23.1 min	29.5 min	27.7%
IL-394	I-80 – IL-1	SB	10.1 min	13.0 min	28.0%
		NB	11.8 min	15.1 min	28.5%
I-80	I-57 - I-65	EB	27.2 min	34.7 min	27.5%
		WB	23.1 min	29.5 min	27.7%
US 30	I-57 - I-65	EB	46.2 min	57.1 min	23.7%
		WB	37.1 min	45.7 min	23.4%

Major traffic flows that could utilize a new east-west route as a viable alternative are shown in Figure 2.16. These major traffic flows could be expected to have benefits from, and therefore some diversion to, the Illiana Expressway. In addition to generating time-savings for drivers choosing to use the Illiana Expressway, the shift of traffic to a new east-west facility could be expected to relieve some congestion on other highways in the study area, most notably I-80 and US 30.

Figure 2.16 Major Study Area Traffic Flows With Potential Diversion to a New East-West Corridor



Network reliability is also an important need for a functional transportation system, closely related to connectivity. When a transportation corridor is vulnerable to debilitating events such as natural disasters, inclement weather, or major traffic incidents, it can result in capacity loss that creates significant economic and safety problems. In some scenarios, losses are limited to the time and fuel costs for drivers searching for alternate routes to their destinations. In more severe scenarios (such as evacuations), the security of system users can be threatened by their inability to reach their destinations.

Recent flooding of the Borman Expressway (I-80 in Indiana) exposed the vulnerability of this critical east-west corridor. Rainy conditions led to a "100-year flood" of the Little Calumet River and forced the total closure of the Borman from Sunday, September 14, 2008 until Wednesday, September 17, 2008 at which point limited lanes in each direction were opened. The flooding was the worst at Kennedy Avenue in the Highland-Hammond area with water depths reaching up to 12 feet.[13] Northbound lanes of I-65 were also closed during this flood period, as were portions of IN 51, IN 55, and several local roads. Flooding in similar areas along I-80 also occurred in August 2007 to a lesser degree.

The capacity loss on the Borman exposed the transportation network's need for a major east-west corridor which could operate as an alternative to I-80 within the Illiana Study Area. In 2005, I-80 served as many as 140,000 vehicles daily at the IN-IL State line, and both I-90 and US 30 are operating at levels close to capacity.

2.5 Consistency with Regional Planning

The Illiana Corridor has been included as a component of both the Chicago Metropolitan Agency for Planning (CMAP) 2030 Regional Transportation Plan (RTP) and the Northwestern Indiana Regional Planning Commission's (NIRPC) Connections 2030 RTP . The proposed Corridor had been included under various names in previous regional plans as well, dating back to Daniel Burnham's Plan of Chicago in 1909, as previously mentioned.

In the CMAP 2030 RTP, the proposed Illiana was broken up into three separate segments between I-80 and the Illinois/Indiana state line: I-80 at I-355 to I-57 (South Suburban Corridor); I-57 to IL 394 (I-57/IL 394 Connector); and IL 394 to the state line (Illiana). Each of the three segments was included in the RTP as a "corridor recommendation," indicating that funding for construction had not been identified, but that consideration should be given to preservation of ROW, in the event it would become threatened.

In the NIRPC Connections 2030 RTP, the Illiana Corridor has been identified as a "New Highway for Further Study." As such, NIRPC recognized and endorsed the need for a feasibility study to evaluate the project's purpose and need, regional impacts, and the type of facility that would best serve this portion of the region. NIRPC also has recognized the importance of preserving right-of-way in the proposed corridor. In a prior study that was completed for NIRPC in 1999, the South Suburban Expressway, as it was then called, was identified as having the potential to relieve congestion on I-80/I-94 (the Borman Expressway).

In 1999, the "Illiana Expressway Coalition" was formed by local elected officials on both sides of the state line to lobby in favor of the proposed Expressway. The Coalition remains active today in promoting the project. This group could serve as the framework for a Bi-state Corridor Planning Council, which CMAP has recommended to oversee future phases of the Illiana Corridor project.

On December 12, 2006, the states of Indiana and Illinois, through their respective departments of transportation (INDOT and IDOT), entered into a Bi-state

[13] ABC 7 Local News, *Some Area Expressways, Roads Still Closed* (9/17/08) accessed at http://abclocal.go.com/wls/story?section=news/local&id=6391816.

Agreement in support of the Illiana Corridor. By entering into this agreement, the two states demonstrated their commitment to studying the corridor's potential for enhancing the safety and flow of traffic both within and through the bi-state region. The agreement expresses the intent of both states to consider alternative funding options, such as constructing the roadway as a tollway, as well as addressing the shared cost between INDOT and IDOT for the upcoming planning, National Environmental Policy Act (NEPA) documentation and preliminary engineering phases of the project. The Bi-state Agreement is a significant step toward providing a framework and establishing procedures for upcoming studies for developing the Illiana Corridor.

In May 2007, Senate Bill 105 (SB105) was signed into law by Indiana Governor Mitch Daniels. This legislation enabled INDOT to perform the feasibility study contained herein to assess the needs of the Illiana Corridor and identify potential alignment corridors. SB 105 calls for the establishment of a review committee to evaluate the study findings, as well as other available information regarding the proposed project, and report to the Governor and the legislative council.

Finally, initial information from the INDOT Freight and Mobility Plan, garnered from discussions with the freight and logistics community in Northwest Indiana, indicates a need for additional mobility and connectivity in the Study Area.

3.0 Public Outreach

3.1 Agency Interviews

As part of the Illiana Expressway Feasibility Study process, a qualitative survey was conducted to obtain input from various stakeholder agencies. The purpose of the survey was to gather information that would be beneficial to the study team in understanding federal, state and regional agency input relative to this feasibility analysis.

By including this qualitative assessment in the study process, INDOT recognized the importance of extending its technical evaluation to include a qualitative diagnostic understanding. Subsequently, the summary which follows defines the comments and discussions provided by agency respondents to the Illiana Expressway Feasibility Study Agency Input Survey questionnaire. This questionnaire was designed to guide discussion and questions were addressed in both closed and open ended format.

Recognizing the importance of bi-state county, regional, state and Federal input, the respondent pool for this survey was defined as twenty-five agencies or regional organizations, with twenty-one of these agencies agreeing to participate in the survey. Each of the responding agencies determined the number of respondents that they would include in the interview. Subsequently, the number of respondents totaled 49. Each of these respondents will potentially have participatory input or evaluation responsibility should the Illiana Expressway move forward into future phases of evaluation. Subsequently, the agencies selected for input have respective understandings based on their agency's area of expertise and were selected to provide a balance of understandings in this evaluation. (See Appendix A for a list of Agency Respondents)

Interviews were conducted between December 2007 and February 2008, in both individual and group format at the discretion of the agency respondent. A defined research protocol was followed to maximize a diagnostic understanding of responses received.

Introduction

With authorization to proceed received in October 2007, The McCormick Group, in consultation with Cambridge Systematics, Inc., began the development of the Illiana Expressway Feasibility Study Qualitative Agency Assessment. The goal of this assessment was to obtain agency input in defining those market factors that may potentially impact the feasibility of constructing this road facility. Respondent data inputs parallel by subject the technical evaluation parameters which are currently being evaluated.

The research protocol was established by The McCormick Group, in consultation with the Cambridge Systematics team. Final approval of survey protocol was provided by INDOT. Interviews were executed in the months of December 2007, January 2008 and February 2008. The surveys were executed with designated respondents representing 21 agencies from Illinois and Indiana at the Federal, state, county and regional levels. Nineteen interviews were conducted in-person and two interviews were conducted by telephone at the request of the interviewees. Designated agency respondents received an introductory letter requesting their participation with the survey questionnaire and study area map attached. This was forwarded electronically on December 10, 2007. Telephone/electronic follow-up to confirm participation with designated interviewees occurred December 12, 2007 – January 30, 2008. The diagnostic survey instrument used to structure and facilitate interview discussion was designed jointly by The McCormick Group and the Cambridge Systematics consultant team, with input and final approval by INDOT. This approved survey instrument was designed as a tool to facilitate and guide interview discussions. Two senior project team members served as the lead interviewers. Individual interviews lasted 60 to 90 minutes. Group interviews lasted 90 minutes to 2 hours.

Respondents conversed freely in discussing their opinions and understandings regarding transportation development relative to the proposed Illiana Expressway.

Table 3.1 Agency Interview Summary

Total # Agencies Contacted = 25	%
21 Interviewed	84%
4 Declined	16%

The four agencies that declined participation referenced their preference not to respond prior to the established NEPA process.

Although respondents were diverse in background and agency tenure, ranging from less than one year to more than 30 years, they shared a broad understanding of their constituent communities and agency discipline requirements. Respondents from each agency shared their views openly regarding potential benefits, areas of evaluation, market factors, funding options and the reasons for their perception of the level of support for this project.

Agency respondents agreed that the overarching reason for Illiana is to improve traveler mobility options, both passenger and freight. Subsequently, it was referenced that improved mobility will in turn improve safety and bring economic development that can be effectively managed to minimize land use impacts that may affect current land use patterns in the study area.

Assessment Focus

Assessment focused on two cluster areas:

1. Highlight key findings, cross-cutting issues and regional trends; and
2. Offer a qualitative perspective of proposed corridor market factors and stakeholder perceptions.

In addition, interviews concluded with an opportunity for respondents to share any additional comments relative to their expectations and recommendations to the project team.

Methodology and Statement of Purpose

The purpose of the Illiana Expressway Feasibility Study Agency Survey was to obtain qualitative insight that will support the study's technical evaluation. Additionally, it can potentially serve as a component of public engagement. This survey solicited input on opportunity areas for public engagement outreach effectiveness. The survey participants were agency specific, representing a pool of 21 agencies (an expansion of the original pool of 12 agencies).

Survey Design

The survey instrument used for the interviews was structured to facilitate discussion in three cluster areas (See Appendix B, Agency Interview Questionnaire.)

The three cluster areas are:

1. Agency Perception;
2. Public Perception; and
3. Technical Evaluation Considerations.

Interview Protocol

Based on interviewee availability, all interviews were conducted in-person or by telephone at the request of the interviewee. Respondents were asked to provide input related to market factors, concerns, and possible benefits to the Calumet Region. Additionally, respondents were asked to provide any additional information deemed appropriate in understanding their planning expectations for the Illiana Expressway.

This survey adhered to the following schedule:

- An introductory letter with the study area map and the questionnaire, dated 12/10/07, sent by Cambridge Systematics, introduced the interview and requested agency participation.
- *The McCormick Group* scheduled interviews with the respective agency respondents for execution during the months of December 2007 – February

2008. Interview dates were selected by the respective participants. Participants also had the option of including more than one respondent. The total agency pool reported in this submission is twenty-one (21) as four (4) agencies declined participation, based on their understanding that they should not make comment independent of the established NEPA process.

- *Cambridge Systematics/The McCormick Group* adhered to the interview schedule, as confirmed by the participating agencies.
- Interviews were conducted with forty-nine (49) respondents. It should be noted that some of the individual agencies had more than one person participating in the interview. *Cambridge Systematics/The McCormick Group* adhered to the approved survey instrument and facilitated the respondents to discuss their responses fully.

Analysis and Reporting of Results

Two principals conducted the interviews and summarized the interview responses. Completed interview write ups were forwarded to *The McCormick Group* evaluation team. This team followed a systematic methodology to analyze the respondent data. With direction from the principal researcher, a staff team executed the following protocol. First, notes were taken while the researcher conducted the interview. Second, the staff team read the completed survey and then coded the survey data based on recurring themes. Third, the coded data was tabulated on individual work sheets, reviewed and qualitatively assessed. Statistical compilations were provided as required. Cross checks were executed for each agency summary, and qualitative clusters were identified.

Preliminary findings were developed and reviewed by staff at *The McCormick Group*. The final report was developed, reviewed and edited by *The McCormick Group* with input from *The Cambridge Systematics* project team before forwarding the final report to INDOT.

Limitations

This survey was executed as a diagnostic instrument, following established research protocol. In providing qualitative responses it should be noted that the findings presented in this report are based on the opinions and understandings expressed during the interviews. In presenting these results, care has been taken to give an accurate depiction of the degree to which opinions were shared. The results reported should be interpreted as reflecting an interpretation of the respondents' opinions.

Summary of Findings

The summary which follows is provided in statistical and qualitative reference to build an understanding of the current market environment. The survey instrument utilized identified nineteen questions for respondent input. Those subject areas follow respectively with summary comments provided.

Table 3.2 Question 1 Summary

Question 1: As a point of reference, the Illiana Study Area map has been electronically forwarded to your attention. Given this study area, do you feel the area defined is sufficient, or should it be broadened in any way?
Discussion: The proposed study area for the Illiana Expressway Feasibility Study is defined by the following boundaries: Northern Border – 0.25 miles north of the US 30 Centerline, Eastern Border – Lake/Porter County Line, Southern Border (East) – Kankakee River, Southern Border (West) – Extension of the Southernmost Will – Kankakee County Line and Western Border – 0.25 miles west of the US 45 Centerline. In the interview process, respondents were informed that the study area represented a defined area of evaluation where corridor alternatives for the Expressway would be considered. It was also indicated that while this defined study area represented the limits for considering potential alternatives, the ensuing analyses would also address impacts to a much larger area, for example, congestion relief on competing roadways and socio-economic impacts.
Response Summary: • Of the twenty-one agencies that participated in the survey, the majority (12 or 57%) indicated their agreement with the proposed study area, as a logical location for early stage evaluation. • Nine of the responding agencies (43%) indicated that the study area should be expanded beyond the currently defined borders. The reasons for expansion vary, reflecting specific priorities of each of the agencies responding. • Of those respondents who felt the study area should be expanded, comments indicated that if Illiana is to make a significant impact in relieving traffic congestion a much larger study area is needed. Additionally, it was referenced that the current area does not provide needed connectivity to western termini such as I-55 or I-80, nor to the Indiana Toll Road (I-80/90) or I-94 to the northeast. Only one respondent suggested that the study area should be moved south to Newton County, to alleviate any potential impact to Lake County. • Comments regarding improved connectivity referenced the need for Illiana to consider the proposed Prairie Parkway, the proposed South Suburban Airport and freight mobility enhancements resulting from potential travel time savings. • Independent of expanding the study area, respondents acknowledged that the primary reasons for building the Illiana Expressway are to reduce congestion on the Borman and to enhance connectivity between Indiana and Illinois.

Table 3.3 Question 2 Summary

Question 2: Within the original defined study area, what do you feel are the key interchange locations that the study team should consider?
Discussion: Within the defined study area 29% of respondents did not feel that they could make a comment regarding interchange locations, as this was viewed as outside of their area of understanding. 47% had other interchange recommendations and 24% agreed with the interchange locations identified in the Corridors of the Future application (US 41, I-65, IL 1/IL 394, I-57).
Response Summary: • Respondents equally acknowledged that increasing the number of interchanges • potentially increases development sprawl, which should also be a planning consideration. • For those respondents who recommended expanded boundaries, the interchange locations most frequently suggested for consideration were: IL 47, I-55, SR50, US 231, SR 2, SR 49, US 30, US 421, and I-80/90. • Access to the proposed South Suburban Airport was also frequently referenced. It was noted that it is the intent of the Project Team to view the Illiana Feasibility Study and the proposed airport as independent projects, whose viability is not co-dependent.

Table 3.4 Question 3 Summary

Question 3: Are there assumptions in planning that you recommend we consider regarding any of the interchange locations you have referenced?
Discussion: Fifteen of the forty-nine respondents (31%) provided comments regarding assumptions in planning that should be considered regarding interchange locations. Comments centered on connectivity that would alleviate congestion, particularly on the Borman and US 30. Respondents also referenced projects in planning that potentially would impact the Illiana Expressway.
Response Summary: • From the responses to this question, the location of the South Suburban Airport, location of planned intermodals, expanded connectivity to the Prairie Parkway and I-55, a larger study area to make a larger impact and protection of land were the most frequent references. • It should be noted that respondents understood that a direct connection to I-355 would not be feasible given development that has now occurred at the existing I-355 terminus at I-80. • Logical termini, independent utility and infill development were referenced. Additionally, freight mobility including planning incentives for truckers to use this Expressway were consistent themes offered for consideration. • Respondents also referenced that interchanges should be located near developed areas to help protect green areas or be minimized in number to further protect green areas.

Table 3.5 Question 4 Summary

Question 4: What are the potential opportunities created by Illiana as you see them? Feel free to define all that apply, for example, economic, mobility, safety, etc.
Discussion: Ease of congestion, economic development and improved mobility were the dominant themes cited for building the Illiana Expressway.
Response Summary: • Of the seventeen agencies that responded to defining potential opportunities that Illiana would offer, sixteen (94%) cited ease of congestion and improved mobility. • Eleven of the agencies (65%) cited economic development. Only one of the respondents did not identify any opportunities to Indiana to ensue from the Illiana Expressway.

Table 3.6 Question 5 Summary

Question 5: How would you gauge public opinion for the Illiana Expressway to be built as a toll facility? On a scale of 1 to 10 with 10 being extremely favorable, what rating would you provide?
Discussion: Twelve of the twenty-one responding agencies provided a rating for perceived public opinion for Illiana to be built as a Toll facility.
Response Summary: • Nine of the twelve respondents (75%) rated public opinion at average or above average for Illiana to be built as a Toll Facility. • This rating reflected the respondents' opinions that the public recognizes development is needed and has to be paid for. Additionally, the region has prior experience with Toll facilities and subsequently, this would not be a new concept in the region. • Two of the respondents who rated public opinion for Illiana to be built as a toll facility below average expressed concern that the public would resist being "taxed twice" to use the roadways. • One respondent provided a range of 3 -5 versus an individual rating. • It should be noted that these percentages reflect those respondents who answered this question; nine respondents did not believe Illiana to be on the public's "radar" and did not feel that they could comment.

Table 3.7 Question 6 Summary

Question 6: As we engage in this feasibility study, we recognize that the concept of Illiana has existed for quite some time, going back to the early 1900s. In that time, we also recognize that there have been many engaged stakeholders. What are the local support groups of which you are aware? Are there any issues specific to these organizations of which you are aware?

Discussion: Experience teaches that public perception is a valued component of building project acceptance. Respondents indicated that groups in northwest Indiana have identified areas of concern and/or project support. With this in mind, respondents identified the following groups who, based on past response to other projects, would potentially be for or against Illiana. The groups referenced to be potentially for Illiana were primarily in the area of economic development. It was indicated that early engagement at the regional and county level would represent a pro-active approach to build understanding and acceptance of this project.

Response Summary:

- In summary, groups identified by the respondents that would potentially be in favor of the Illiana Expressway focused on economic development issues, while those identified as potentially against Illiana focused on environmental issues.
- Fourteen of the twenty-one agencies or 67% provided groups for our consideration. The remaining agencies (seven of the twenty-one or 33%) were not aware of any support or opposition groups for our consideration at this time.
- Given the groups provided, clearly two dominant issues surfaced: economic development and land impact. The groups cited are listed below.
- **Pro (Potential)**
  - Indiana Rural Development Council
  - Regional Economic Development Commission
  - NW Indiana Forum
  - Universities
  - Hospitals
  - Manufacturers
  - Indiana Truckers Association
  - NIRPC
  - Kankakee Building & Construction Trades Council
  - Economic Alliance of Kankakee County
  - National Industrial Transportation League
  - Legislators
  - Kankakee River Basin Development Corporation
  - Economic Development Organizations
  - Trade Groups
  - Real Estate Groups
  - Development Community
  - Regional Newspapers
  - Chambers of Commerce
  - Coffee Creek Watershed Conservancy
  - Town of Cedar Lake
  - Lake County Soil and Water Conservation District

Question 6: As we engage in this feasibility study, we recognize that the concept of Illiana has existed for quite some time, going back to the early 1900s. In that time, we also recognize that there have been many engaged stakeholders. What are the local support groups of which you are aware? Are there any issues specific to these organizations of which you are aware?
– Local Environmental Organizations – AAA – Will County Governmental League – Will County Center for Economic Development – Iron Ring Communities » University Park » Crete » Beecher » Peotone » Monee » Chicago Southland Economic Development Corporation

Table 3.8 Question 7 Summary

Question 7: From your understanding, what are the local opposition groups of which you are aware? Are there any issues specific to these organizations of which you are aware?
Discussion: The groups that may be potentially against Illiana, based on respondents' prior experience on similar projects were primarily in the category of environmental protection groups. It was referenced that early planning to protect and minimize land impact may potentially serve to mitigate concerns within this constituency.
Response Summary: • Against (Potential) – Hoosier Environmental Council – Livestock Industries – Large Individual Farmers – Residential Communities – Kankakee Marsh Preservation – CAPIT (Citizens Against the Privatized Indiana Toll Road) – www.no-illiana.com – Citizens of Lake County – Elected Officials – Sierra Club – Save the Dunes – Interfaith Federation – Environmental Groups – Certain local governments – Environmental Law and Policy Center – I-69 Opposition Groups – Will County Residents for Responsible Intermodal Development – South Suburban Airport Opposition Groups

Table 3.9 Question 8 and Question 9 Summaries

Questions 8: Given this feedback, what do you feel is the overall climate of reception for the Illiana Expressway? On a scale of 1 to 10, with 10 being excellent, how would you rate it? **Question 9: Please share your thoughts on the rating you provided.**
Discussion: Fourteen of the twenty-one agency respondents (67%) provided a rating defining the overall climate of reception for the Illiana Expressway. The primary reception is perceived to be favorable by the respondents interviewed. The respondents did indicate that it is early in the process and not a high visibility project in the public's understanding.
Response Summary: • Of the fourteen agency respondents who provided a rating, eleven (79%) rated the overall climate of reception for the Illiana Expressway to be average or above. • This rating reflected the respondents' opinions that the public recognizes that congestion must be alleviated. • Of the two agency respondents who rated the overall climate of reception below average, comments reflected concern regarding development sprawl and land use. A • recurring theme was *"yes, but not in my backyard."* • One agency respondent provided three ratings (1, 8, 10). These ratings reflected similar thoughts previously referenced by other respondents.

Table 3.10 Question 10 Summary

Question 10: In your view, using the same 1 to 10 scale, what is the potential of this Expressway being built as a potential link to the Illinois Tollway or the Indiana Toll Road?
Discussion: Respondents overwhelmingly gauged public opinion high for the Illiana being built as a potential link to the Illinois Tollway or Indiana Toll Road.
Response Summary: • 93% and 100% of respondents were favorable, respectively, to linking the Illiana to the Illinois Tollway or to the Indiana Toll Road. Rationale reflected respondents' beliefs in logical connections to existing facilities.
Developing Illiana through Design-Build project delivery?
Discussion: Respondents were equally positive regarding the potential of a design-build option.
Response Summary: • 100% of the 10 respondents to this question rated this option average or above. Comments referenced the success of other design-build projects and the opportunity to save time and funding by streamlining the process. • It should be noted that Design-Build was rated by only 10 of the 21 respondents. Many were not familiar with this method of project delivery. It should also be noted that legislation would be required for Design-Build to be authorized in Illinois and that while legal in Indiana, it is a relatively new concept.

Table 3.11 Question 11 Summary

Question 11: What are your views on developing Illiana as a Public-Private Partnership (P3)?
Discussion: Respondents who had knowledge of public-private partnerships (P3) were positive to the opportunity of the Illiana Expressway being developed as a P3. Fifteen of the twenty-one respondents (71%) referenced favorable comments to the P3 consideration.
Response Summary: • Respondents cited the opportunity of P3 providing needed funds when state budgets are being challenged. • It was also stated that P3 may be considered negatively if it is not explained to the public in a positive reference. Respondents suggested that a clear statement of value and structure of the potential P3 be provided to assist the public's understanding. • Additionally, respondents recognized that many funding options may need to be considered. Respondents who were not familiar with P3 did not feel that they could comment on this question.

Table 3.12 Question 12 Summary

Question 12: Recognizing that there is a significant amount of farmland in the defined study area, what are your views regarding land use impact?
Discussion: Within the study area there is a large segment of undeveloped land. Respondents' insights regarding land use impacts are listed below. Comments centered on minimizing land impacts recognizing the importance of prime farm land and protected areas.
Response Summary: • Respondents, independent of their respective disciplines, acknowledged that protection of land is important. Additionally, the majority of groups who could potentially oppose Illiana may have environmental concerns regarding land use. Of the twenty-one respondents, nineteen (90%) indicated that land impact must be considered. It was referenced that development should minimize impacts on prime farmlands where possible with the understanding that economic development, land use and infrastructure needs must find a balance. • Opportunities to minimize impacts included reducing the number of interchanges, avoiding wetlands and those areas that are habitat to protected and endangered species, particularly along the Kankakee, where multiple considerations exist. • It was referenced that construction in primarily undeveloped areas could affect natural resources, prime farmland and individual and large farmers, both directly and in terms of run-off. Also, historic structures, cemeteries or archaeological impacts will require planning consideration. • Additionally, a direct relationship exists between farm production and the ability to transport these products. Specifically, references to truck transport were made related to the ethanol industry, given the preferred close proximity of production and transport. • Balancing farmland acquisition and economic development has and will continue to be an important planning consideration. • Respondents suggested that limiting access to minimize sprawl be considered in planning. • One respondent stated that "farmland issues could be a show stopper." CAPIT was formed to oppose the sale of the Indiana Toll Road and it was referenced that this group is also opposed to Illiana. Subsequently, eminent domain and farmland will likely be issues of concern.

Table 3.13 Question 13 Summary

Question 13: Are you aware of any right-of-way (ROW) issues, positive or negative, in the study area that we need to consider?
Discussion: Of the twenty-one respondents, thirteen (62%) provided comments regarding ROW issues. Those that did not respond did not consider ROW to be in their agency's area of expertise.
Response Summary: • Of the thirteen respondents, two primary themes were evidenced in the responses provided: a. The South Suburban Airport (SSA) footprint should be considered. It was recognized that both projects, Illiana and the SSA, are independent, however, each should be acknowledged in planning for the other. b. Avoidance of developed areas, prime farmland, nature preserves and wetlands should be considered in corridor alignment options. • Specific references were made to Eagle Lake, Medewine Prairie, Forest Preserve, Green Garden Township (residential development along the Manhattan – Monee Road Corridor) and Archaeological remains from Native American tribes along the Kankakee. • It was also referenced that historically ROW has proven to be one of the potentially negative perceptions associated with transportation infrastructure development. Early information exchange and proactive engagement of corridor stakeholders will help alleviate this perception. A common theme referenced the need for building ownership through public outreach early and often.

Table 3.14 Question 14 Summary

Question 14: Are you aware of any environmental "red flags" that we will need to consider?
Discussion: The respondents referenced environmental considerations as provided below for the project team's review. The majority of these references center on the Kankakee River.
Response Summary: • Illinois 1989 State Law for Wetlands replacement has a higher ratio (5:1) than the Corps of Engineers requires. Subsequently, impacts for Illinois are greater and should be considered in mitigation planning. • Refer to the South Suburban Airport Master Plan • Indiana Bat • Wetlands • Floodplains • Air Quality • Water Quality • Farmland • Kankakee River and Valley • Marsh Preservation • Trim Creek Pete Bog/Landmarks in Beecher-Peotone • Marshlands • Environmental Justice • Lake County Parks • Isaac Walton • Municipal Parks • Endangered Species • Potential 4(f) Properties • Run off (the soil in the study area is sandy, subsequently, pollutants from run-off (gas, oil) may enter the soil easily as a by-product of construction. • Lake Dalecarlia • Pembroke Township in southeast Kankakee County

Table 3.15 Question 15 Summary

Question 15: Do you know of any existing or planned intermodal facilities within or in close proximity to the study area?
Discussion: The respondents indicated that there are a number of intermodals at various stages of planning in the study area. In referencing these, the respondents indicated that connectivity with Illiana should be considered.
Response Summary: • Crete (CenterPoint Intermodal) • Beecher • Logistics Park Chicago (Elwood • Expansion of Elwood • Ridge Properties (Wilmington) – Lorenzo Road at I-55 • Proposed Union Mills Intermodal (LaPorte) along the CSX rail line • Freight yards between Gary and Hammond (Kirk Yard, Gibson Yard) • Westville (Proposed Intermodal)

Table 3.16 Question 16 Summary

Question 16: Are you aware of any major freight generating industries that exist or are planned for the study area? If so, please elaborate.
Discussion: The respondents referenced the following considerations. It was indicated that The Ports of Indiana should be engaged to assist with a larger understanding of freight movement and its requirements.
Response Summary: • South Suburban Airport • Potential shift in rail freight traffic south from the inner Chicago region as a result of the EJ&E / CN Merger. • Ports of Indiana • Steel Mills (U.S. Steel, Mittal) • Grain Exports • CenterPoint Intermodal Facility • Logistics Park Chicago

Table 3.17 Question 17 Summary

Question 17: How do you think the proposed Illiana Expressway could best serve truck traffic (dedicated truck lanes, truck only facility, etc.)?
Discussion: Respondents recognized that mitigating freight congestion would ease traffic congestion for passenger and freight traffic. The method of achieving this mitigation was broadly discussed. Respondents had multiple recommendations, indicating that they would be open to project planning to define the best options.
Response Summary: • Respondents indicated that the proposed Illiana Expressway could best serve truck traffic by evaluating options that would facilitate truck movement. Demand, the N/S and E/W movement of freight and cost will need to be evaluated to best serve the needs of truck operators. Maximizing freight mobility is of particular interest to the Ports of Indiana. • It was referenced that contact with national truck/freight organizations and the Ports of Indiana would serve to create the appropriate dialogue to best address freight movement and to define truck lane alternatives. • Respondents were relatively evenly divided on the value of including dedicated truck lanes. Respondents recognized value but raised considerations regarding the public's perception of congestion associated with truck only traffic and its impact on land value. Related comments included the following: • I-80/94 and I-65 would be better suited for truck only lanes than Illiana. • Not sure dedicated truck lanes are needed. • A truck only facility would not serve the needs of this region. Benefits of truck only lanes would depend on time savings. • Truck only lanes should be considered, but may not be justified. Trucks may use I-57 rather than IL 394 to go north. • Dedicated truck lanes would separate traffic and promote safety. These lanes would • only be used if they saved time and could be promoted as cost efficient. • The facilitation of freight traffic would not generally be supported by the public, recognizing that the public feels that passenger traffic should receive priority over freight traffic. • The Illiana could alleviate traffic on the Borman, thus making the Ports easier to access. • Weight limits should be addressed, particularly if Illiana would connect into Michigan where there are greater weight limits.

Table 3.18 Question 18 Summary

Question 18: Do you know of any other projects planned or proposed that may impact Illiana?
Discussion: There are numerous projects at various stages of planning in the study area. Those referenced are provided below.
Response Summary: • Westlake Corridor Commuter Rail Extensions to Lowell and Valparaiso • SR10 widening • 109th Street Interchange (I-65) • Indiana Toll Road widening • US 30 widening (US 41 to SR 55 and Colorado to SR 51) • US 41 two-way left turn lane • SR 2 at I-65 interchange improvement • Main Street Connection between Munster, IN and Lynwood, IL • South Suburban Airport (SSA) and the SSA Connector Route • IL 394 improvements • CenterPoint intermodal in Crete • Re-alignment of IL 1 at IL 394 • Potential new Metra Station at Peotone Rd. • Assume all projects in the CMAP long range plan are committed. • I-57 at I-294 interchange • The portion of the Prairie Parkway between IL 34 and IL 71 that will go to construction in 2009. • A congestion pricing study will be done on the NW Tollway (I-90) Elgin to O'Hare. Express buses on the Tollway are being considered. A Congestion Reducing • Initiative application was submitted for these projects. • Beecher By-Pass • I-80 widening in Illinois • A feasibility study has been completed for a proposed I-57 interchange at 6000 N. Road (intersection of the southern border of the Illiana Study area with I-57). • Continued growth at the Ports of Indiana

Table 3.19 Question 19 Summary

Question 19: Are there any other thoughts that you would like to share that would assist our team in preparing this Feasibility Study?
Discussion: The comments which follow are included as individual statements provided by the respondents. Discussion was open ended.
Response Summary: • Consider more input at the local and county levels. • USACE has the following public works projects in development: – Kankakee River Basin Feasibility Study – Yellow River Ecosystem Restoration – Cedar Lake dredging – Wetlands, waterways, impact on land, plant and animal species should be prioritized in this evaluation. • Expand contacts to include the Illinois Department of Agriculture, Illinois FHWA and the US Fish and Wildlife Service. • Port of Indiana needs connection to Illiana. • Intelligent Transportation Systems (ITS) technology is essential to diverting traffic from the Borman. • The NWI Forum has recently approved INCREATE, a regional freight study. • Truck traffic is expected to double in the next twenty-five years. Currently, there is no strategic initiative to address America's freight challenges. Illiana could be one component to provide new surface transportation system capacity. Illiana could additionally be a multimodal corridor that could also be used for evacuation in emergency situations. • Connectivity is the primary driver of Illiana. Potential expansion beyond I-57 and I-65 should be defined. • The Illiana project needs a substantial Public Involvement program that is meaningful. It was suggested that a Corridor Planning Council be created. • Lake County planners should be interviewed as part of the Public Outreach surveys. The Lake County Comprehensive Plan is currently being updated and it does not appear that the Illiana Expressway will be included in the update. • The results of the Northwest Indiana Study and the Lugar Study should be reviewed as part of the data collection process. • Property is currently being purchased from the railroads to widen the existing Indiana Toll Road. • Leigh Morris, former Mayor of LaPorte, has recently been hired by Governor Daniels to oversee the lease of the Indiana Toll Road. It was suggested that Mr. Morris would be a good person to interview regarding Illiana and the proposed intermodal facilities. • Targeted completion date for Electronic Toll Collection (I-Zoom) on the Indiana Toll Road is 4/01/08. When I-Zoom is complete, tolls will increase, but only for payment by cash. IFA will subsidize I-Zoom users. The rate for cars is now $0.03 per mile, which will go up to $0.06 for cash users. After 2010, tolls can be adjusted for inflation. • Indiana doesn't have legislation to enable video ticketing for toll evasion, which would inhibit open road tolling. It is expected that this legislation will be passed in • the near future. • Interest received in one year by INDOT on Major Moves money was $258M, which is more than three times the Indiana Toll Road's annual revenue ($80M). • Ohio Turnpike is targeted for electronic toll collection in 2009. • The Indiana Toll Road has public truck only parking lots (at several former service plazas), but without electrical hook-ups. • Between 2006 and 2007, there has been a 21% increase in trucks diverting to the Borman from the Toll Road.

Question 19: Are there any other thoughts that you would like to share that would assist our team in preparing this Feasibility Study?
• The US 31 Study (Indianapolis to South Bend) was started as a toll road feasibility study. • There have been discussions about a potential intermodal facility at Union Mills in LaPorte County on the CSX Rail Line • Additional groups referenced for follow-up should the evaluation move forward are provided below. a. Northwestern Indiana Regional Planning Commission (NIRPC) b. Kankakee River Basin Commission c. Little Calumet River Basin Development Corporation d. Coffee Creek Watershed Conservancy, Inc. e. Deep River Watershed Planning f. DNR Lake Michigan Coastal Program g. Town of Cedar Lake h. Lake County Soil and Water Conservation District i. Local Environmental Organizations: Save the Dunes, Izaak Walton League, j. Sierra Club, TNC, Ducks Unlimited and The Audubon Society. k. County Planners

Concluding Comments

In concluding the surveys, respondents acknowledged the importance of Illiana as a needed infrastructure improvement to alleviate traffic congestion, for both passenger and freight traffic. The opportunity is clearly defined. The challenge is to maximize connectivity while minimizing impacts to established communities and valued land resources.

Additionally, it was clear that the study area has a large number of existing and proposed intermodal facilities, as well as infrastructure projects proposed or in the planning stages. Subsequently, connectivity to these planned developments is important in order to maximize the value of Illiana.

In addition to the increased volume of passenger traffic, freight traffic is a contributor to congestion. It is expected that the significant increase in freight traffic that is projected nationally will be evidenced in this project corridor. (Freight tonnage on roadways by truck is projected to double by 2035). It is generally understood that increased traffic volumes, both freight and passenger, will only serve to increase the mobility deficits that the region is currently experiencing. Subsequently, enhanced travel efficiency that would be provided by a roadway such as Illiana would potentially have a significantly positive impact on local, regional and national commerce.

Survey respondents felt that citizens will benefit from improved access and safety. It was also indicated that growth management principles will need to be applied, specifically recognizing that counties will need to be engaged as they will make land use decisions and develop county plans. For example, it was indicated that Will County is favorable to the Illiana Expressway. Conversely, it was indicated that Lake County is not favorable to the Illiana Expressway, given concerns regarding further division between the Northern and Southern parts of the County. This indicates that an opportunity exists to build a larger degree of understanding within the study area should planning efforts move forward.

Subsequently, the balance between infrastructure growth and preserving the land will be the potential pivot between groups who are potentially in favor of or opposed to the Illiana Expressway. It was referenced that businesses and local communities will potentially benefit from economic development while farmers and environmentalists will be focused on minimizing land impacts.

Respondents expressed their appreciation for being included in early stage input to the feasibility study. Additionally, proactive engagement and continued information exchange with the agency community was a recurring recommendation.

Respondents in general indicated openness to Illiana and welcomed the opportunity to see this Feasibility Study move forward.

Clearly, an opportunity exists to correct regional transportation deficiencies without sacrificing quality of life concerns by maintaining the appropriate balance between infrastructure development and environmental protection.

4.0 Environmental Screening and Red Flag Analysis

The environmental screening for the Illiana Expressway Feasibility Study played a major role in establishing the locations of the three alternative alignment corridors. The environmental information that was obtained through a review of secondary source data and field observations was used to identify potential "red flags" that could limit potential corridors through the study area. While the land cover within the study area is predominantly farmland, low-density development exists around the towns and villages in the study area, including Monee, Peotone, Beecher, Grant Park, Manteno and Goodenow in Illinois and Cedar Lake, Lake Dalecarlia, Crown Point, St. John and Lowell in Indiana. In addition, there are a number of managed lands within the area that require special attention, as well as numerous wetlands and floodplanes. These and other components of the environmental screening process are described in the sections which follow.

A Geographic Information System (GIS) database including developed and natural features was assembled into a basemap for the study area. Secondary source data was collected from Illinois and Indiana state agencies. Data gaps were supplemented with data from other sources including federal agencies, environmental non-profit organizations and others. In addition to the secondary source information, field visits of the proposed corridors were also undertaken. The team also gathered recent aerial photographs of the study area as assembled by the states and counties in Illinois and Indiana.

An overview of the data collected in the study area follows. As the level of engineering and design increases, the environmental analysis effort increases. During the engineering phase and NEPA documentation, environmental studies include field studies and detailed mapping that update the location of features and species within areas that may be impacted by proposed transportation project.

4.1 Natural Environment

Federal and State Protected Species

The Endangered Species Act of 1973 seeks to conserve the ecosystem of threatened and endangered species. The U.S. Fish and Wildlife Service has jurisdiction of threatened and endangered species. The state agencies also take a role in protecting federal rare, endangered, or threatened species and additional species that are significant to each state. Due to the available habitat found in flood plains, ponds, rivers, and lakes in the area, numerous species are included on the Federal or state protected species list.

Table 4.1 shows the Federal protected species in the study area. As expected, several species are common to all counties within the study area, including the Indiana Bat (Endangered), Eastern Prairie Fringed Orchid (Threatened) and Sheepnose Mussel (Candidate for designation). In addition to the species shown in this table, there are other species that the states have designated for protection. These include several species of bats, rabbits, squirrels, and other mammals. Several species of bird, frog, otter, badger and snake are also included on the state protected species list.

Table 4.1 Federal Endangered, Threatened, and Candidate Species

Location	Common Name	Scientifie Name	Status
All Study Area Counties	Indiana Bat	Myotis sodalis	Endangered
	Eastern Prairie Fringed Orchid	Platanthera leucophaea	Threatened
	Sheepnose Mussel	Plethobasus cyphyus	Candidate
Kankakee & Will Counties, IL	Prairie Bush Clover	Lespedeza leptostachya	Threatened
Will County, IL; Lake County, IN	Mead's Milkweed	Asclepias meadii	Threatened
	Eastern Massasauga Rattlesnake	Sistrurus c. catenatus	Candidate
	Hines Emerald Dragonfly	Somatochlora hineana	Endangered
Will County, IL	Lakeside Daisy	Hymenoxys herbacea	Threatened
	Leafy Prairie Clover	Dalea foliosa	Endangered
	Spectaclecase Mussel	Cumberlandia monodonta	Candidate
Lake County, IN	American Burying Beetle	Nicrophorus americanus	Endangered
	Karner Blue	Lycaeides melissa samuelis	Endangered
	Piping Plover	Charadrius melodus	Endangered
	Dune Thistle	Cirsium pitchera	Threatened

Source: U.S. Fish and Wildlife Service.

The vascular plants Eastern Prairie Fringed Orchid, Prairie Bush Clover, Mead's Milkwead, and Lakeside Daisy are designated as endangered or threatened on the Federal protected species list. Numerous other species are included on the state threatened and endangered species list including the Horned Pond Weed, Prairie Golden Rod, Downy Gentian, and Prairie Violet are included on the vascular plant endangered, threatened, and rare species list.

State and Federal Preservation Areas and Parks

Figure 4.1 shows the preservation areas including forests, wildlife areas, parks and federally/state managed lands in the study area. The preservation areas include Goodenow Grove (IL), Thorn Creek Woods (IL), Grand Kankakee Marsh (IN), Cedar Lake Marsh Fish and Wildlife Area (IN), Thomas Sporre Wildlife Refuge (IN), Beaver Dam Wetland Conservation area (IN), and Biesecker Prairie Nature Preserve (IN). These preservation areas are also home to species found in wetlands and on threatened and endangered listings. These designated areas will be avoided if possible.

The U.S. DOT Act of 1966 protects publicly owned parks and historic sites under Section 4(f) of the Act. The law requires the Secretary of Transportation to approve projects requiring use of publicly owned parks, recreation areas, or wildlife refuge, or land of a historic site of national, state, or local significance only if:

- There is no feasible and prudent alternative to such use; and
- The project includes all planning in order to minimize harm.

The Land and Water Conservation Act protects resources through awarding federal funds to the National Park Service, State Departments of Parks and Recreation, and local or regional park agencies. Section 6(f) land and water conservation funds are used to protect, improve, or maintain the resource. Several managed lands are located in the study area and may have received land and water conservation funding.

Water Courses

Negative impact on streams and waterways is discouraged. The national policy for the waters of the U.S., including wetlands and streams, is a “no overall net loss” policy. The U.S. Army Corps of Engineers (USACE) has jurisdiction over streams and jurisdictional wetlands. The states of Illinois and Indiana have jurisdiction over isolated wetlands. The USACE and the states require compensatory mitigation to replace aquatic resource functions unavoidably lost or adversely affected by authorized activities.

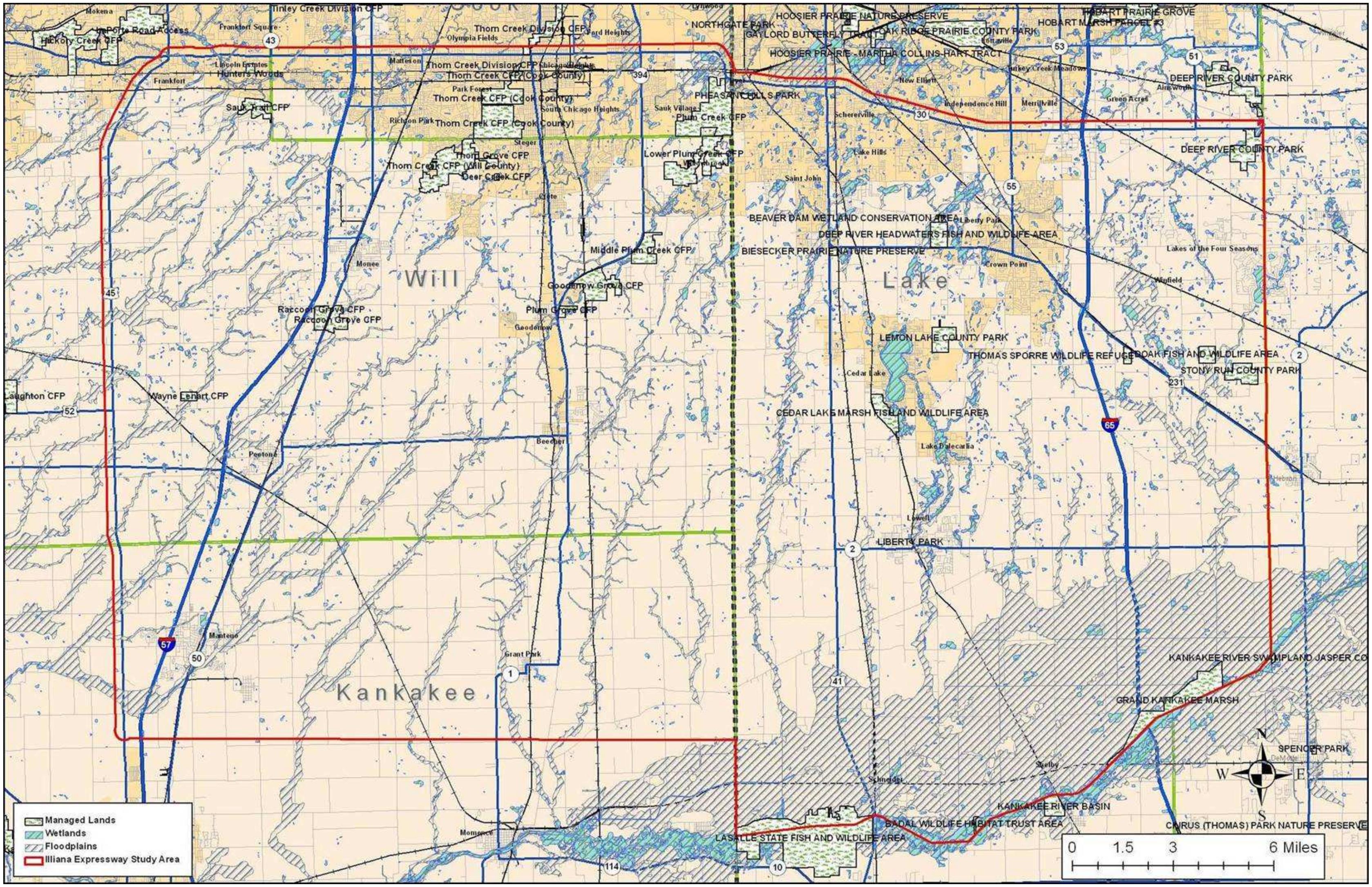
The water courses in the study area are tributaries of the Kankakee River. The Kankakee River is a tributary of the Illinois River, approximately 90 mi (144 km) long, in northwestern Indiana and northeastern Illinois. At one time the river drained one of the largest wetlands in North America and furnished a significant portage between the Great Lakes and the Mississippi River. Significantly altered from its original channel, it flows through a primarily rural farming region of reclaimed cropland south of Lake Michigan.

The Kankakee River is one of Indiana’s most extensive water drainage systems. It encompasses approximately 3,000 square miles of river basin which includes at least thirteen northwestern Indiana Counties. The topography of the watershed is flat to moderately rolling, expressing the effects of extensive glaciation. Sand

and gravel river bottom and scoured bedrock are indicators of the glacial activity.

Land use in the river basin is predominantly agricultural, with over 75% of the land used for cropland, pastureland, or forest land. Extensive corn, soybean, wheat, and hay fields surround the Kankakee River. Consequently, the Kankakee system is quite important in providing drainage for these agricultural lands. Much of the basin was dredged and channelized in the early 1900s to aid waterflow from these lowland areas

Figure 4.1 Parks, Flood Plains, Wetlands, and Natural Features Within the Illiana Study Area



Floodways and Flood Plains

Due to the extent of the Kankakee River drainage basin, much of the land in the study area is near or in a flood plain or flood way as shown in Figure 4.1. A flood plain is flat or nearly flat land adjacent to a stream or river that experiences occasional or periodic flooding. It includes the floodway, which consists of the stream channel and adjacent areas that carry flood flows, and the flood fringe, which are areas covered by the flood, but which do not experience a strong current. The proposed transportation corridors may coexist with floodplain through design features that allow water to flow while also separating the transportation corridor from the water. These design features will be developed later in the transportation development process after selection of beneficial transportation corridors at the project detail level.

Wetlands

Wetlands improve water quality, help prevent flooding, and provide habitat for wildlife. Protection of wetlands that have a hydrological tie to other waters of the United States are under the jurisdiction of the U.S. Army Corps of Engineers (USACE). Isolated wetlands with no hydrological connection to other waters are under the jurisdiction of the states where the wetland is located. Wetlands are areas that are covered by shallow water or have waterlogged soils for long periods during the growing season in most years. Other names for wetlands include swamps, bogs, and marshes. Wetland type is determined by its vegetation. Section 404 of the Clean Water Act requires that anyone interested in placing fill or dredge material in a wetland obtain a permit from the USACE. An isolated wetland permit is required from the states for fill or dredge activities within the wetland.

The wetlands in the study area are classified as Palustrine, one of five classifications of Wetlands in North America. Palustrine wetlands are the most common classification in the Northeast. There are several different types of Palustrine wetlands of varying quality. Palustrine wetlands are habitat for numerous wildlife and plants. These wetlands are dominated by trees, shrubs, and mosses that are compatible with water saturated soil conditions. Palustrine wetlands include marshes, swamps, bogs, wet meadows, fens, ponds, and wet prairies.

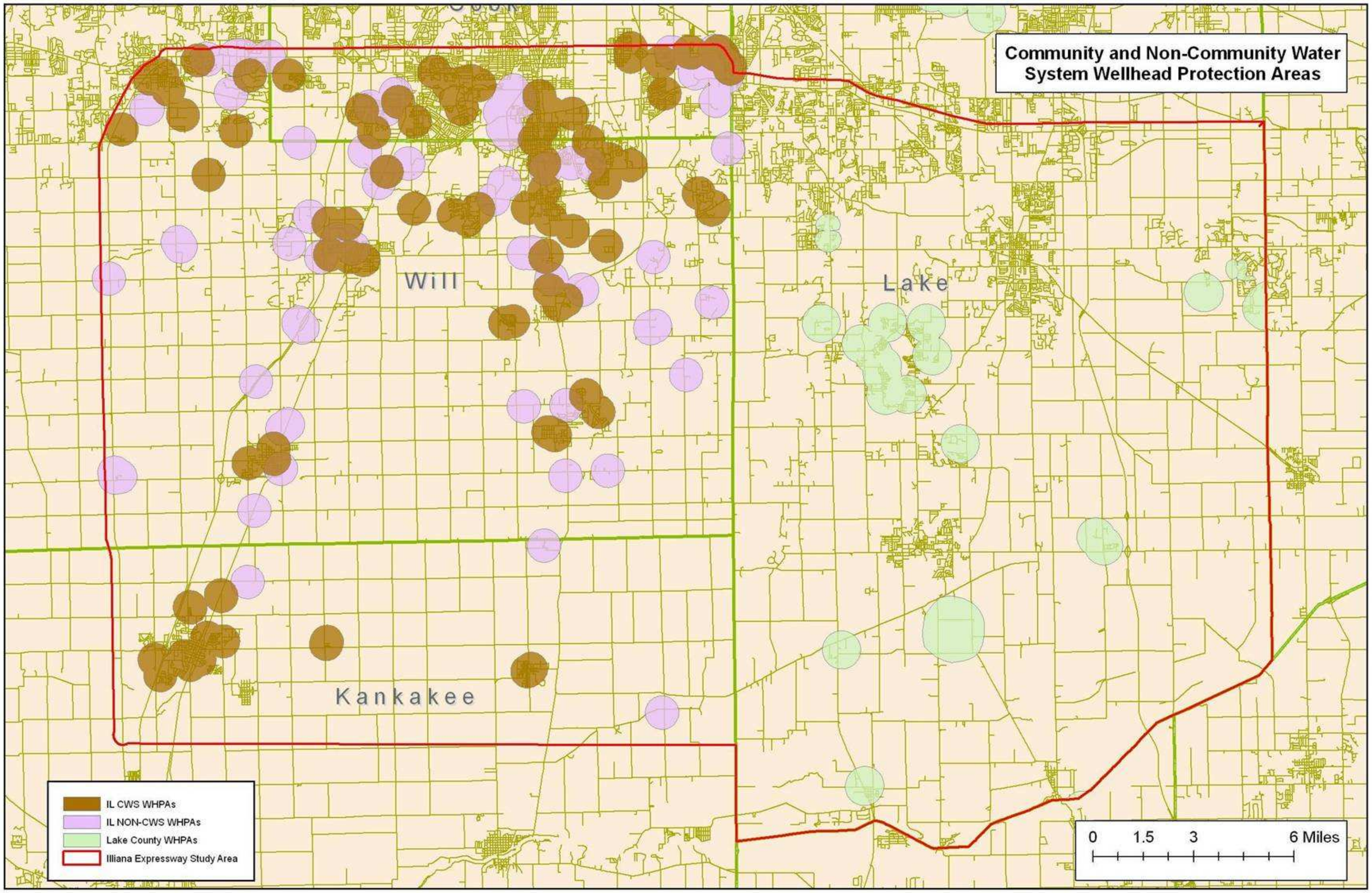
Wellhead Protection Areas

Wellhead areas are protected by The Safe Drinking Water Act and Indiana and Illinois state legislation. The goal of this legislation is to protect ground water from contamination

For the purposes of this feasibility study, information on wellhead areas was collected from the two states. Figure 4.2 displays the wellhead protection areas. The map does not provide precise locations for wells, but the information is sufficient for this level of study. Generally speaking, the wells are clustered near the population centers of the study area. Several clusters of wells were located in the NW portion of the study area in the south Chicago suburbs (Frankfort, Lincoln Estates, Matteson, Park Forest, Richton Park, and South Chicago Heights, Illinois). Other Illinois clusters were found at Monee, Peotone, Manteno, Grant Park, Beecher, and Goodenow. Wells were also found in rural locations in Illinois and Indiana that serve small clusters of residential or single residences. In Indiana, clusters of wells were found in the communities near Cedar Lake, Lake Dalecarlia, and areas south of Lowell.

The buffer used to illustrate the wellhead protection areas is much wider than the actual well field. Thus, the possible impacted areas will be documented for further study in a subsequent detailed phase of study. The wellhead protection areas will influence the corridor locations.

Figure 4.2 Wellhead Protection Areas



Community Facilities

Figure 4.3 shows the community facilities in the Illiana Study Area, including public infrastructure and entities such as schools, airports, police stations, fire stations, landfills, etc. As expected, population density is higher in and near the towns and cities of the study area. The community services are clustered within and around the cities and towns. The community facilities within the study area are described below.

Schools

Based on the locations of public schools shown in Figure 4.3, it is apparent that the schools are heavily clustered near the communities served. The following school information was collected through the Indiana or Illinois Departments of Education.

- The Hanover Community School Corporation serves the Cedar Lake community. The district is made up of 3 elementary and 1 high school and approximately 1,600 students.
- The Crown Point Community School Corporation serves the Crown Point area. It serves 5,800 students and has 8 buildings in the Crown Point vicinity.
- The Tri-Creek School Corporation serves the Lowell area. It has 5 schools and serves 3,300 students.
- At the northern edge of the study area, the Merrillville Community Schools provide 8 schools for its 6,400 students in the Merrillville area.
- The Lake Central School Corporation has 10 schools and 8,500 students in the Saint John community.
- The Crete-Monee district has 9 schools and 4,800 students.
- Peotone school district serves 2,000 students in 6 school buildings.
- The Beecher School District serves 1,000 students in 3 schools.
- The Kankakee School District serves 5,980 students in 13 schools.
- Grant Park School District serves 600 students in 2 buildings.
- Manteno Schools serves 2,190 students in 5 schools.

Airports

A total of 18 public or private airports, heliports, and air fields are in the Illiana study area. These vary in scale from paved runways and heliports to grass strips in rural areas. In fact, all 18 are privately held and only 2 of the privately owned ports allow access by the public. The two ports that provide public access are Lowell Airport near Lowell, Indiana and Bult Field in Monee, Illinois.

Cemeteries

The study's GIS mapping database shows 45 cemeteries in the study area. These are geo-referenced by latitude/longitude in the database due to age and off-street locations. Many are not accessible from public streets and do not have street addresses.

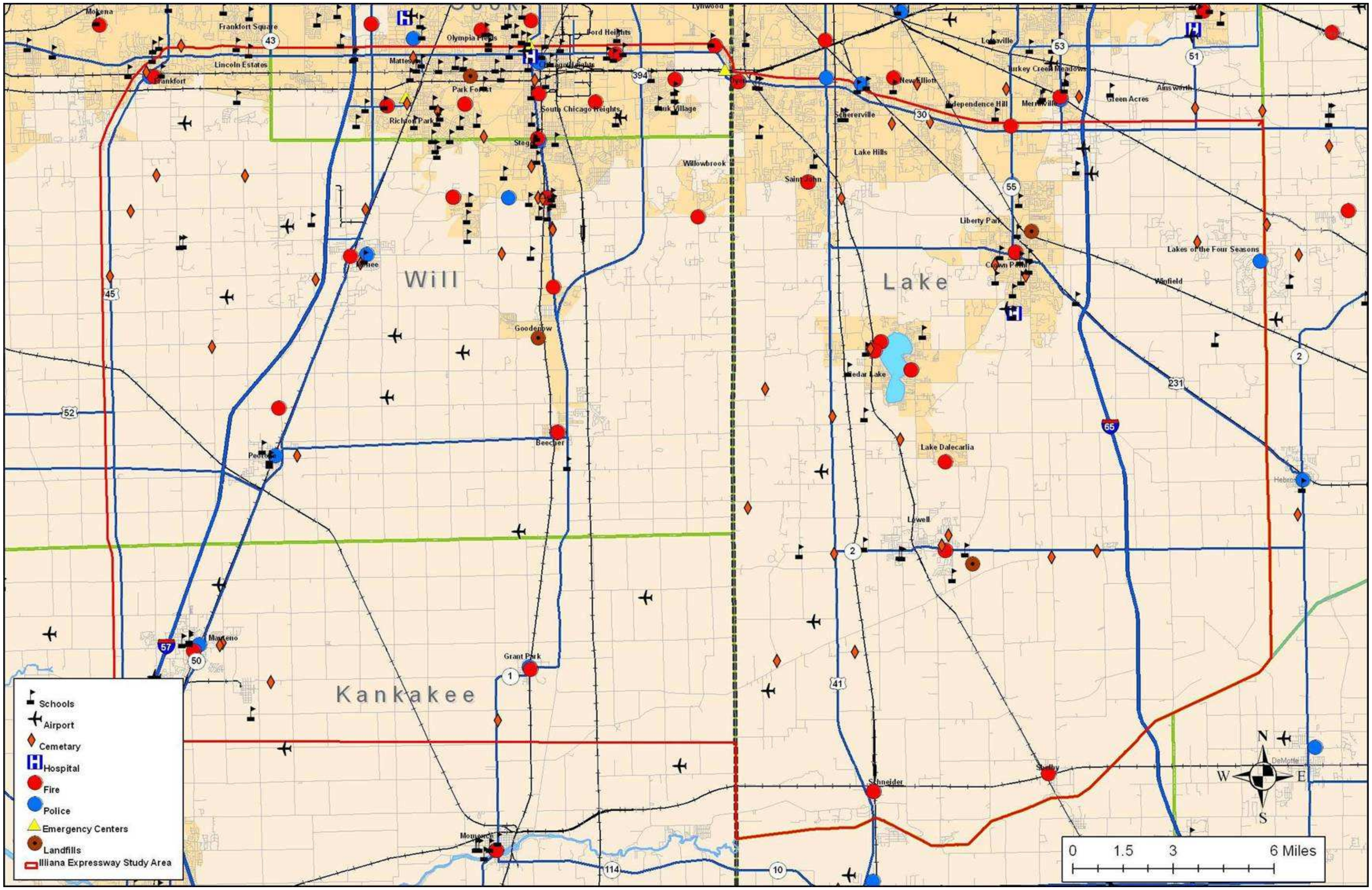
Hospitals

The study area may be underserved by hospitals especially in the southern portion. Two hospitals are located within the study area, including St. Anthony Medical Center in Crown Point, Indiana and St. James Hospital and Health Center in Chicago Heights, Illinois. Two additional hospitals are just north of the study area in Olympia Fields, Illinois and Hobart, Indiana.

Landfills

In the study area, four current or former operating landfills are located near Park Forest and Goodenow, Illinois and Lowell and Liberty Park, Indiana. Abandoned dumps, if identified or studied, may be included in the CERCLIS hazardous materials listing. CERCLIS is the Comprehensive Environmental Response Compensation and Liability Information System. It contains sites with potential or confirmed hazardous waste and involve the U.S. EPA Superfund program. A total of 15 properties were identified as CERCLIS sites. Review of individual site information will identify if the site is a former disposal site.

Figure 4.3 Community Facilities



Hazardous Material Locations

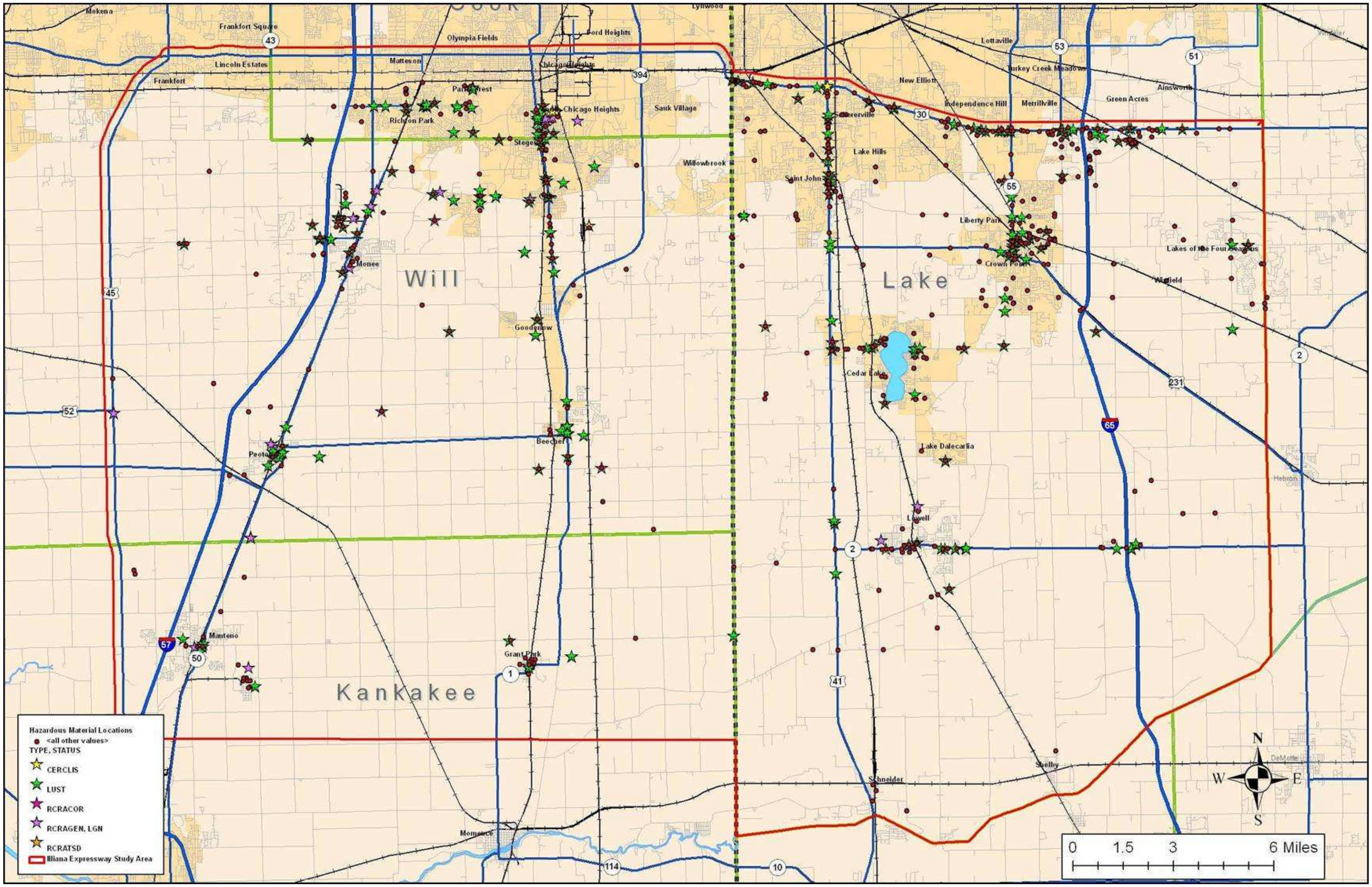
Hazardous waste sites include existing and abandoned retail businesses, manufacturing sites, institutions, dumps, farms, and other locations. Within the study area, there are approximately 1,315 registered sites. Most of these sites include underground storage tanks where petroleum-based products are stored. These are associated primarily with fueling stations and other retail operators, farms with fueling tanks, schools, golf courses, and other facilities. These uses are very common and are relatively easily mitigated if the selected roadway corridor would require purchase of the property as right of way.

The large generators of hazardous materials, on-site treatment, storage, and large manufacturing operations are of particular concern in transportation studies and are shown in Figure 4.4. Over time, ground and other natural resources may become contaminated due to the large hazardous material generators, handlers, and storage operators. Acquisition of these sites would trigger NEPA requirements involving considerable efforts with documentation and site preparation if the property changes from industrial to public use. Approximately 50 locations of the 1,315 sites in the database are mapped and examined for proximity to the proposed Illiana freeway corridors. Table 4.2 provides a reference for the acronyms shown on Figure 4.4.

Table 4.2 Hazardous Material Definitions

CERCLIS	Comprehensive Environmental Response Compensation and Liability Information System – sites containing potential or confirmed haardous waste where US EPA Superfund program is involved.
LUST	Leaking Underground Storage Tank – sites that have been reported to the State Fire Marshal's Office where a release from an underground storage tank has occurred.
RCRACOR	Resource Conservation and Recovery Act Information Sites Database - lists information on hazardous waste handlers (generators, transporters, storers, and disposers) activities.
RCRAGEN-LGN	Resource Conservation and Recovery Act Generators of Hazardous Waste – large generators are shown.
RCRATSD	Resource Conservation and Recovery Act Treatment, Storage, or Disposal Facility.

Figure 4.4 Hazardous Material Locations



Prime and Unique Farmland

Concern over loss of farmland due to sprawl or erosion has reached a national level. We read and hear about these concerns in the national media. Prime farmland is land that has the best combination of physical and chemical characteristics to produce food, feed, forage, fiber, and oilseed crops. Unique farmland is land other than prime farmland that is used for production of specific high-value food and fiber crops. It has the special combination of soil quality, location, growing season, and moisture supply to produce sustained, high quality, yields of specific crops.

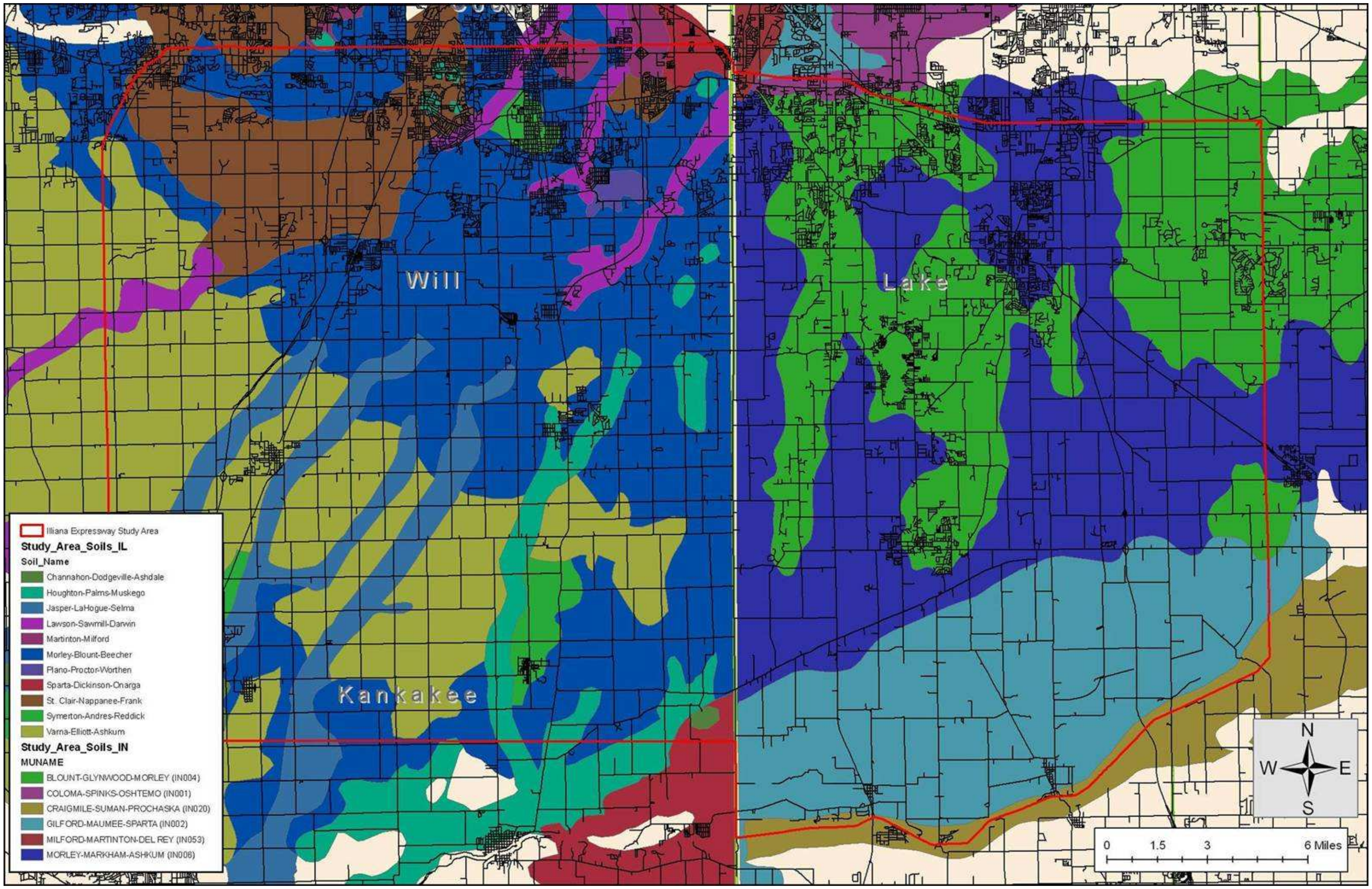
Much of the crop land acreage of the study area may be prime or unique farmland based on soil type and condition. Three soil associations make up most of the land area within the Illiana Study Area as shown in Figure 4.5. The allocation of each association designated as Prime, Unique, or Statewide Importance is shown below.

1) MORLEY-MARKHAM-ASHKUM ASSOCIATION
81% Prime Farmland
0% Unique Farmland
0% Farmland of Statewide Importance

2) BLOUNT-GLYNWOOD-MORLEY ASSOCIATION
90% Prime Farmland
0% Unique Farmland
10% Farmland of Statewide Importance

3) GILFORD-MAUMEE-SPARTA ASSOCIATION
94% Prime Farmland
0% Unique Farmland
2% Farmland of Statewide Importance

Figure 4.5 Soil Associations



Air Quality

The U.S. Environmental Protection Agency (EPA) periodically adopts new standards for ozone and particulate matter. According to the Northwestern Indiana Regional Planning Commission, the Metropolitan Planning Organization for Northwest Indiana, the original EPA ozone standard was 0.12 parts per million averaged over one hour. Using that standard, the original designation for the Chicago – Northwest Indiana region was Severe Nonattainment. In 1997, the ozone standard was lowered to 0.08 parts per million, averaged over an 8-hour period. The designation for the Chicago – Northwest Indiana region was set as Moderate Nonattainment. For the first time, LaPorte County was also designated as Marginal Nonattainment. With data showing that air quality improved, LaPorte County was later designated as being in attainment of the standard.

In 2008, the ozone standard was lowered to 0.075 parts per million. Designations will be made in consultation with the state air quality agencies in March 2010. The State Implementation Plans are due in 2013 and transportation conformity using tighter Motor Vehicle Emission Budgets will be required in 2014. The particulate matter standard was also changed to deal with much smaller particles. While the PM_{10} standard dealt with particles with a 10 micron diameter, the newer $PM_{2.5}$ standard deals with particles with a 2.5 micron diameter. Again the nonattainment area designation covers the entire Chicago – Northwestern Indiana area. The two states are currently working on plans to bring the overall region into attainment of the standard.

Shown below in Table 4.3 is the Chicago-Gary-Lake County region level of attainment for the national Ambient Air Quality Standards for Criteria Pollutants (NAAQS) established by the Environmental Protection Agency (EPA). As of 2007, the Chicago area was classified as a non-attainment region for three of the NAAQS: particulate matter (PM_{10}), Sulfer Dioxide, and Ozone. Annual numbers of days where the Air Quality Index (AQI) is above 100 (a significant milestone in EPA monitoring of air quality) vary significantly from year to year in Chicago, dependent on factors such as temperature and the success of programs which target emission reduction on hot days. The average number of days where AQI was greater than 100 between 1996 and 2006 is about 14. This 10-year average ranks Chicago 30th out of the 93 metropolitan areas reviewed by the EPA.

Table 4.3 Highway Vehicle Pollutants

Pollutant	National Emissions from Highway Vehicles*	% of Total National Emissions	Chicago Attainment for NAAQS
Carbon Monoxides	41.6	47.1%	Yes
Nitrous Oxides	5.6	32.7%	Yes (for NO2)
Volatile Organic Compounds	3.6	19.6%	n/a
Particulate Matter (PM-10)	0.2	1.1%	**No**
Particulate Matter (PM-2.5)	0.1	3.4%	n/a
Sulfur Dioxide	0.1	0.7%	**No**
Lead	0.6	13.4%	Yes
Ozone	n/a	n/a	**No**

Note: All values for 2007. All values in Million Short Tons except Lead (thousand short tons).

4.2 Historic and Architectural Investigations

Historic Properties/Architectural History Records Check

Indiana Properties

All Indiana sites within the Illiana Study Area were reviewed using the *Lake County Interim Report* (Historic Landmarks Foundation of Indiana [HLFI] 1996) as a reference. A drive-by survey was performed on April 24 and 25, 2008, for all properties within the study area with a rating of "Notable" or "Outstanding" in the Interim Report. A rating of Outstanding means that the property contains a high degree of historic and/or architectural importance and integrity, and would generally be eligible for the National Register of Historic Places (NRHP). A rating of Notable means the property contains a lower degree of significance and/or integrity than a property designated as Outstanding but still could be eligible for the NRHP, especially if more information about the property was discovered. (See Figure 4.14 for locations of referenced resources.)

Center Township

There are six resources listed as Notable and one resource listed as Outstanding in the Indiana Historic Sites and Structures Inventory (IHSSI) for Center Township. The field review determined that three of these resources have been demolished, alterations and/or additions have lowered the integrity of two others, and one retains the same level of integrity as when inventoried.

Table 4.4 Resources in Center Township, Lake County, Indiana

Address	IHSSI No.	Property Type, Date	Architectural Style	Outbuidings	Rating	Current Status	Red Flag?
2208 E. 109th Avenue	089-142-75003	Farm, ca. 1910	Free Classic Cottage	Dairy barn, milk house, chicken house, silo, corncrib, well house, tool shed	Notable	Still standing, integrity intact	Yes
812 E. 113th Avenue	089-142-75011	House, ca. 1860	Upright and wing	N/A	Notable	Demolished	No
1810 E. 113th Avenue	089-142-75012	Farm, ca. 1878/1900	Vernacular/Free Classic	Livestock barn, chicken houses, tool shed, corncrib, hen house, smokehouse, summer kitchen	Notable	Still standing, integrity lowered	No
12318 Delaware Street	089-142-75013	House, ca. 1880	I-house	N/A	Notable	Demolished	No
12614 Marshall Street	089-142-75014	House, ca. 1896	Vernacular	N/A	Notable	Demolished	No
14627 Chase Street	089-352-75031	Farm, ca. 1900	Queen Anne	Corncrib, milk house, shed	Notabale	Still standing, integrity lowered	No
1410 East 137th Avenue (Figure 4.6)	089-352-75023	Farm, ca. 18990	Vernacular	Round barn, silo, corncrib, equipment shed, milk house	Outstanding	Still standing, integrity intact	Yes

Figure 4.6 Farm, 1410 East 137th Avenue, Center Township, Lake County, Indiana

Two history/architecture properties in Center Township (089-142-75003 and 089-352-75023) should be considered Red Flags.

Hanover Township

There are four resources listed as Notable and one resource listed as Outstanding in the IHSSI for Hanover Township. The field review determined that one of these resources has been demolished, and four retain the same level of integrity as when inventoried.

Table 4.5 Resources in Hanover Township, Lake County, Indiana

Address	IHSSI No.	Property Type, Date	Architectural Style	Outbuidings	Rating	Current Status	Red Flag?
14804 W. 113th Avenue	089-177-80012	Church/ Parsonage, ca. 1866/1872	Gothic Revival	N/A	Notable	Still standing, integrity intact	Yes
14632 W. 121st Avenue	089-177-80024	Farm, ca. 1860	I-house	English barn, corncribs, chicken house, milk house, hog house, wood shed and summer kitchen	Notable	Still standing, integrity intact	Yes
13407 Patterson Road	089-370-80031	House, ca. 1900	Gable-front, Queen Anne	N/A	Notable	Still standing, integrity intact	Yes
11529 W. 144th Street	089-370-80042	House, ca. 1935	English Cottage	N/A	Notable	Demolished	No
13725 Calumet Avenue (Figure 4.7)	089-040-80034	Echterling Farm, ca. 1912	Vernacular (round roof)	Round barns, corncribs, chicken house	Outstanding	Still standing, integrity intact	Yes

Figure 4.7 Farm, 13725 Calumet Avenue (Echterling Farm), Hanover Township, Lake County, Indiana

Four history/architecture properties in Hanover Township (089-177-80012, 089-177-80024, 089-370-80031, and 089-040-80034) should be considered Red Flags.

West Creek Township

There are six resources listed as Notable in the Indiana Historic Sites and Structures Inventory (IHSSI) for West Creek Township. The field review determined that three of these resources have been demolished and three retain the same level of integrity as when inventoried.

Table 4.6 Resources in West Creek Township, Lake County, Indiana

Address	IHSSI No.	Property Type, Date	Architectural Style	Outbuidings	Rating	Current Status	Red Flag?
11703 W. 173rd Avenue	089-370-85003	Farm, ca. 1880	Queen Anne	Livestock barn, corncrib, milk house, chicken house	Notable	House demolished; outbuildings remain	No
Parrish Avenue	089-370-85005	County Bridge #35, 1921	Warren Pony Truss	N/A	Notable	Demolished	No
W. 181st Avenue	089-370-85011	Farm, ca. 1880	I-house/ Italianate	Dairy barn	Notable	Still standing, with integrity	Yes
White Oak Avenue	089-370-85012	Lake Prairie Presbyterian Church, ca. 1920	Gothic Revival style	N/A	Notable	Still standing, with integrity	Yes
19202 Calumet Avenue	089-040-85014	Farm, ca. 1920	Craftsman	English barn, silo, corncrib	Notable	Still standing, with integrity	Yes
U.S. 41	089-575-85023	Bridge over Kankakee River, 1915	Camelback Truss	N/A	Notable	Demolished	No

Three history/architecture properties in West Creek Township (089-370-85011, 089-370-85012, and 089-040-85014) should be considered Red Flags.

Eagle Creek Township

There are four resources listed as Notable and one resource listed as Outstanding in the IHSSI for Eagle Creek Township. The field review determined that all five properties retain the same level of integrity as when inventoried.

Table 4.7 Resources in Eagle Creek Township, Lake County, Indiana

Address	IHSSI No.	Property Type, Date	Architectural Style	Outbuidings	Rating	Current Status	Red Flag?
14820 Iowa Street	089-352-95005	House, ca. 1870	I-house/ Italianate	N/A	Notable	Still standing, integrity intacat	Yes
4411 E. 153rd Avenue	089-352-95007	Farm, ca. 1880	Gabled-ell/Italianate	English barns, carriage house, shed	Notable	Still standing, integrity intact	Yes
E. 173rd Avenue	089-352-95016	Big Oaks Farm, ca. 1880	I-house/ Italianate	Dairy barn, silos, sheds	Notable	Still standing, integrity intact	Yes
North Clay Street, south of SR 2	089-352-95030	House, 19902	Free Classic	N/A	Notable	Still standing, integrity intact	Yes
Range Line Road (Figure 4.8)	089-584-95032	County Bridge No. 36, ca. 1900	Pennsylvania Through Truss (iron construction	N/A	Outstanding	Still standing, integrity intact	Yes

Figure 4.8 County Bridge #36, Range Line Road, Eagle Creek Township, Lake County, Indiana

All five history/architecture properties in West Creek Township should be considered Red Flags.

Cedar Creek Township

There are six resources listed as Notable and two resources listed as Outstanding in the IHSSI for Cedar Creek Township. The field review determined that two of these resources have been demolished, alterations and/or additions have lowered the integrity of two others, and four retain the same level of integrity as when inventoried.

Table 4.8 Resources in Cedar Creek Township, Lake County, Indiana

Address	IHSSI No.	Property Type, Date	Architectural Style	Outbuidings	Rating	Current Status	Red Flag?
W. 153rd Avenue	089-352-90004	House, 1889	Upright-and-Wing/Italianate	N/A	Notable	Still standing, integrity intact	Yes
W. 155th Avenue	089-370-90006	Farm, ca. 1920	Colonial Revival	Dairy barns, corncrib, round-roof barn, windmill	Notable	House demolished, outbuildings remain	No
16109 Morse Street	089-370-90013	House, 1862	Gabled-ell/Italianate	N/A	Notable	Still standing, integrity decreased	No
1606 W. Belshaw Road	089-352-90032	Farm, 1870	I-house/Greek Revival/Italianate	English barn, corncribs	Notable	Still standing, integrity decreased	No
22404 Harrison Street	089-584-90050	House, ca. 1915	Craftsman	N/A	Notable	Still standing, integrity intact	Yes
Colfax Street	089-575-90058	Wildwood Lodge, 1920	Lodge-Craftsman	N/A	Notable	Still standing, integrity intact	Yes
3606 W. Belshaw Road (Figures 4.9-4.11)	089-370-90035	John Buckley Homestead, 1853	I-house/Greek Revival	English barn, corncrib, chicken house, milk house, hog house, and tool shed	Outstanding	Still standing, integrity intact. Listed on the NRHP in 1984, under Criterion C.	Yes
State Road 55	089-584-90060	Shelby Bridge	Two Camelback Through Trusses	N/A	Outstanding	Demolished	No

Figure 4.9 House, John Buckley Homestead, 3606 W. Belshaw Road, Cedar Creek Township, Lake County, Indiana

Figure 4.10 House, John Buckley Homestead, 3606 W. Belshaw Road, Cedar Creek Township, Lake County, Indiana

Figure 4.11 Outbuildings, John Buckley Homestead, 3606 W. Belshaw Road, Cedar Creek Township, Lake County, Indiana

Four history/architecture properties in Cedar Creek Township (089-352-90004, 089-584-90050, 089-575-90058, and 089-370-90035) should be considered Red Flags.

Winfield Township

One resource is listed as Notable in the IHSSI for Winfield Township. The field review determined that the property retains the same level of integrity as when inventoried

Table 4.9 Resourcess in Winfield Township, Lake County, Indiana

Address	IHSSI No.	Property Type, Date	Architectural Style	Outbuidings	Rating	Current Status	Red Flag?
E. 117th Avenue	089-142-70004	House, ca. 1860/1905	Italianate/Queen Anne	N/A	Notable	Still standing, integrity intact	Yes

This Winfield Township property should be considered a Red Flag.

St. John Township

There are three resources listed as Notable and one resource listed as Outstanding in the IHSSI for St. John Township. The field review determined that one of these resources has been demolished and three retain the same level of integrity as when inventoried.

Table 4.10 Resources in St. John Township, Lake County, Indiana

Address	IHSSI No.	Property Type, Date	Architectural Style	Outbuidings	Rating	Current Status	Red Flag?
8113 Cline Avenue	089-565-60018	Farm, 1910	Colonial Revival	Dairy barn, horse barn	Notable	Still standing, integrity intact	Yes
8417 Sheffield Avenue	089-177-60024	Farm, 1860	Vernacular	English Barn	Notable	Still standing, integrity intacat	Yes
8806 W. 85th Avenue	089-565-60025	House, ca. 1880	I-house	N/A	Notable	Demolished	No
1370 Joliet Street (US 30) (Figure 4.12)	089-565-60010	Joseph Ernest Meyer House, 1929-31	Tudor Revival	N/A	Outstanding	Still standing, integrity intact. Listed on National Register under Criterion A and C.	Yes

Figure 4.12 House, Joseph Ernest Meyer House, 1370 Joliet Street, St. John Township, Lake County, Indiana. Photo from http://www.meyerscastle.com

These history/architecture properties in St. John Township (089-565-60018, 089-177-60024 and 089-565-60010) should be considered Red Flags.

Ross Township

There are two resources listed as Notable in the IHSSI for Ross Township. The field review determined that both properties retain the same level of integrity as when inventoried.

Table 4.11 Resources in Ross Township, Lake County, Indiana

Address	IHSSI No.	Property Type, Date	Architectural Style	Outbuidings	Rating	Current Status	Red Flag?
8724 Randolph Street	089-142-65081	House, ca. 1910	Vernacular	N/A	Notable	Still standing, integrity intacat	Yes
8700 E. 93rd Avenue	089-494-65083	Farm, ca. 1850	I-house	English barn, milk house	Notable	Still standing, integrity intact	Yes

There are two history/architecture properties in Ross Township (089-142-65081 and 089-494-65083) that should be considered Red Flags.

Illinois properties

The architectural properties in Illinois were identified using the Illinois Architectural/Archaeology Resources GIS-http://gis.hpa.state.il.us/hargis. All propereties outside the boundaries of towns and cities were included in the survey. The Illinois GIS is new, but the data is fairly extensive, with some information from the 1970s. Most of the architectural resources fell within towns in the area; there are very few outside towns. However, there is one property within Kankakee County that is a potential red Flag (Figure 4.13).

Figure 4.13 Schoolhouse, 6979 Vincennes Trail, Kankakee County, Illinois

6979 Vincennes Trail (200888)- The Point School, which is on the National Register of Historic Places (1992), is listed under Criterion A. It is a one-room country school that was used from 1854 to 1942. Currently, it is used as a museum. However, at the time of the survey, it appeared that preparations were underway to move the building. When the move will occur and where the building will be moved could not be determined.

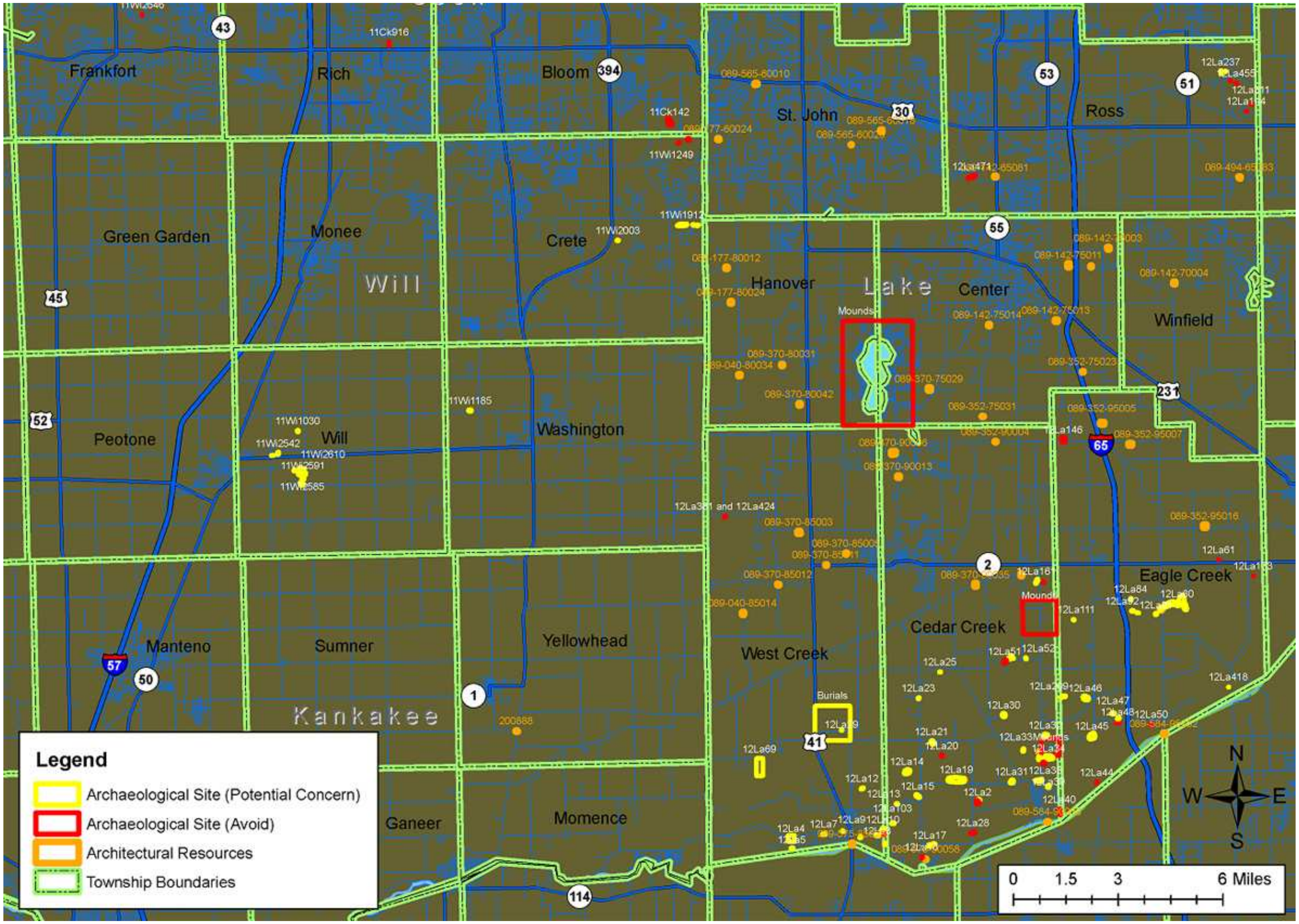
Archaeological Site Review

As of March 2008 within the Illinois counties there were approximately 3,485 archaeological sites in Will County, 1,059 in Cook County and 579 in Kankakee County. Within Lake County, Indiana, there were approximately 650 recorded archaeological sites. Within the defined study area there are 30 archaeological sites in Will County, four in Cook County, two in Kankakee County, and 76 in Lake County. Historic cemeteries present on USGS quadrangles for Illinois within the search area total 26 (Figure 4.15). Additional undocumented cemeteries are likely present within the entire search area. The location and number of Lake County historic cemeteries were not investigated, as a GIS layer previously existed.

The sites and cemeteries are grouped into two categories, “red” and “yellow.” Sites placed into the red category should be avoided if possible as each is a NRHP/NRHP eligible site or is a cemetery that falls under a burial law for each state. Sites placed in the yellow category should be considered as an advisory as each is considered potentially eligible or significant but status has not been determined. Based on the site forms, sites placed into the yellow category appear to be significant archaeological resources based on the number of recovered artifacts and/or a notation of possible features/middens being present at the time of original investigation. It should be noted that much of the information on the site forms is old and incomplete. This is especially the case with the Lake County, Indiana site information. Within Lake County, historical references (Blatchley 1897) make reference to mounds being present within certain sections of the county and these are marked on the GIS layer provided for Lake County. It is unknown if any of these mounds still exist in the respective sections.

During the field review of site locations on April 24 and 25, 2008, the vast majority of the site locations were found to be under cultivation, while a few were located adjacent to currently occupied structures. One site, 12La1 in Lake County, Indiana, may have been destroyed by the construction of a house at the site location, but without a detailed investigation it can’t be determined if 12La1 still exists. Without a detailed investigation at each red or yellow site location it is unknown if any intact significant archaeological deposits exist. The exact locations of several sites in Lake County are not precisely known—neither the site form nor the mapped location provides enough detail to narrow the site location to less than 16.2 ha (40 ac) [quarter section], and in some cases to not less than 259 ha (640 ac) [section]. It is clear from this investigation that archaeological site density greatly increases as one approaches the Kankakee River.

Figure 4.14 Illiana Expressway Study Area – Architectural and Archaeological Resources



4.3 References

Blatchley, W.S. 1897 . *Geology of Lake and Porter Counties*. Indiana Department of Geology and Natural Resources Twenty-second annual report, Indianapolis.

Historic Landmarks Foundation of Indiana. 1996. *Lake County Interim Report.* Historic Landmarks Foundation of Indiana, Indianapolis.

5.0 Corridor Development

The objective as set out in the feasibility study was to develop three different conceptual corridor alternatives deemed as feasible based on the available preliminary constraint mapping. Engineering analysis has helped to define the conceptual corridor alternative development. The design features outlined in this study will serve as a basis for making engineering decisions as the project further develops.

5.1 Design Standards

Conventional development of road designs involves developing plans based upon a set of standardized schematics. Those standardized schematics are a state's design standards. When mass-producing roads, this approach has enabled transportation agencies to take advantage of prior decisions that have been made based upon safety and reduced user costs.

Through coordination with INDOT and IDOT personnel and research of the States' design standards, design criteria were compared between the two agencies. The Indiana Design Manual used by INDOT was the source for identifying standards for new construction or complete reconstruction (4R) of a freeway. The IDOT Bureau of Design and Environment Manual was the source for standards in Illinois. The geometric design criteria for freeways were reviewed in the manuals and are summarized in Table 5.1.

Table 5.1 Comparison of Indiana and Illinois Design Criteria

Design Element			Indiana Rural (used for study purposes)	Illinois Rural	Indiana Urban	Illinois Urban
Design Speed (mph)			70	70	50-70	60
Level of Service			B (Desirable) C (Minimum)	B	B (Desirable) C (Minimum)	C
Travel Lane or Traveled Way Width			12 ft (Travel Lane)	2@ 36 ft (Traveled Way Width)	12 ft (Travel Lane)	2 @ 24 ft (Traveled Way Width)
Shoulder (Right Width) (1)			11 ft (Usable) 10 ft (Paved)	10 ft (Total Width) 10 ft	11 ft (Usable) 10 ft (Paved)	10 ft (Total Width) 10 ft
Shoulder (Left Width)			2 Ln:4 ft Paved 3 Ln:10 ft Paved	10 Ft. (Total Width) 10 Ft.	2 Ln:4 ft Paved 3 Ln:10 ft Paved	8 ft 6 ft
Cross Slope	Travel lane(2) (3)		2%	3/16"/ft (1.56%) for lanes adjacent to crown	2%	3/16"/ft (1.56%) for lanes adjacent to crown
	Shoulder		Paved Width ≤ 4 ft: 2 % Paved Width > 4 ft: 4 %	½ in/ft	Paved Width ≤ 4 ft: 2 % Paved Width > 4 ft: 4 %	½ in/ft
Median Width (Depressed)			100 ft (Desirable) 54.5 ft (Minimum)	60 ft min.	60 ft (Desirable) 10 ft for 4 Lane 54.5 ft 6 Lane (Minimum)	55 ft min.
Median Width (Flush Concrete Barrier)			30.5 (Desirable) 26.5 ft (Minimum)	22 ft	26.5 ft (Minimum)	20 ft
Side Slopes	Cut	Fore Slopes	6:1	1V:6H	6:1	1V:6H
		Ditch Width	4 ft	4 ft	4 ft	4 ft
		Back slope	4:1	1V:3H	4:1	1V:3H
Fill			6:1 to Clear Zone 3:1 max. to Toe	1V:6H to Clear Zone 1V:3H max. to Toe of Slope	6:1 to Clear Zone 3:1 max. to Toe	1V:6H to Clear Zone 1V:3H max. to Toe of Slope

Design Element		Indiana Rural (used for study purposes)	Illinois Rural	Indiana Urban	Illinois Urban
Median Slopes		8:1 (Desirable) 5:1 (Maximum)	1V:6H (1V:4H Reconstruction)	8:1 (Desirable) 5:1 (Maximum)	1V:6H (1V:4H Reconstruction)
Auxiliary Lanes	Lane width	12 ft	12 ft	12 ft	12ft
	Shoulder Width	10 ft (Right) 4 ft (Left)	10' (Right) 8' min.(Left)	10 ft (Right) 4 ft (Left)	10' (Right) 8' min.(Left)
Superelevation Rate		emax = 8 %	New: emax = 6 % Reconstruction: emax = 8%	emax = 8 %	New: emax = 6 % Reconstruction: emax = 8%
Vertical Curvature (K-Value)	Crest	247	247 (70 mph)	247 (70 mph)	247 (70 mph)
	Sag	181	181 (70 mph)	181 (70 mph)	181 (70 mph)
Maximum Grade	Level	3%	New : 3 % Remain in Place : 4 %	3 % (70 mph)	New : 3 % Remain in Place : 4 %
	Rolling	4%	New : 4 % Remain in Place : 5 %	4 % (70 mph)	New : 4 % Remain in Place : 5 %
Minimum Grade		0.5 % (Desirable) 0.0% (Minimum)	0.5 % (Desirable) 0.0% (Minimum) (With Special Ditching)	0.5 % (Desirable) 0.0% (Minimum)	0.5 % (Desirable) 0.3 % (Minimum) (With Curb & Gutter)
Minimum Radii	emax = 6% (New)	N/A	Desirable: ≥ 3000 ft Minimum: 2050 ft	N/A	Desirable: ≥ 3000 ft Minimum: 2050 ft
	emax = 8% (Reconstruction)	1640 ft	Minimum: 1820 ft	1650 ft	Minimum: 1820 ft
Stopping Sight Distance		730 ft	730 ft	730 ft	730 ft
Decision Sight Distance		780 ft	1105 ft	1410 ft	1105 ft

1. Shoulder Width (Left): The following will apply:
   a. The usable shoulder width is equal to the paved shoulder width. The desirable guardrail offset is 2ft from the usable shoulder width. See section 49-5.0 for more information.
   b. Where there are 3 or more lanes in one direction and the volume of trucks exceed 250 DDHV, a 12 ft width should be used.
   c. For a left shoulder of 4 ft or wider, the usable-shoulder width will be 1ft more than the paved-shoulder width.
2. Cross Slope - Travel lane (Indiana Design element): Cross slopes of 1.5 % are acceptable on an existing bridge to remain in place.

Cross Slope - Travel lane (Illinois Design element): For each additional lane away from the crown lanes, increase the cross slope by 1/16"/ft (0.5%) per additional lane up to a maximum of 5/16"/ft (2.5%).

In most cases the design criteria for both states are the same or very similar. Some variations exist in pavement cross slopes, shoulder widths, median widths and slopes, superelevation rates, and decision sight distance. The comparison of these design elements along with other items in the manuals define maximum and minimum design standards for roadway design criteria and geometry that take into account the required levels of safety for the roadway. For the purposes of this study, the Indiana Rural design criteria was chosen as the base criteria because the Indiana design standards were generally more conservative. Therefore the standard used for the study met the majority of the minimum design standards in each state.

5.2 Methodology

Three alternative alignment corridors were developed to compare the degree of feasibility across the study area. In order to cover the entire study area, corridors were developed across the southern, central, and northern regions of the study area. The purpose of the three regional corridors is to show the degree of feasibility between the engineering design, environmental impact, socioeconomic impact, and construction costs. With additional environmental and socioeconomic data from the acquired GIS mapping, several iterations for corridors were analyzed before the final ones were selected within the southern, central, and northern regions.

Each corridor was developed to minimize impacts to the environment and socioeconomic landscape, and reduce impacts to major planned development.

Since the proposed South Suburban Airport (SSA) is incorporated in all 2030 transportation long range planning studies for IDOT, it was also considered in the identification of the Illiana conceptual feasibility corridors. The northern corridor (AC3) was developed to connect to the proposed north access to the proposed airport. The central corridor (AC2) skirts the southern boundary of the SSA. The southern corridor (AC1) was developed to minimize impact to environmental and socioeconomic features.

These three corridor locations were then carried forward to compare traffic, revenue, and benefits of the corridors. These are preliminary conceptual corridors used for proof of feasibility of a project. Future detailed studies would be required to move the project forward through the National Environmental Policy Act (NEPA) requirements, and finalize the development of a final corridor for use in the construction of the freeway.

The proposed Illiana corridors were developed as a high-speed limited access rural freeway with emphasis on serving through traffic on the facility. With this in consideration the corridors were drawn with large radius curves (12,000 to 20,000 ft. radii) in order to limit the amount of superelevation that would be required in the roadway. The study area is fairly flat, so steep grades are not anticipated for the roadway.

5.3 CORRIDOR WIDTH

For the purposes of this feasibility study, a planning level corridor needs to be used due to the uncontrolled database, two dimensional design, and the limited design features (i.e. hydrology) available in the data.

In the preliminary planning steps of any new terrain highway corridor project, the decision regarding corridor width is difficult. An extremely wide corridor provides the most flexibility and does not limit the actual route location within each conceptual corridor alternative, however, the wider the corridor the greater the perceived environmental impacts. This can mislead the reviewers because the actual environmental impacts will be substantially less as a more precise route is defined.

In this study, a corridor width of 3,000 feet was determined to be appropriate for this level of study. The actual right of way necessary for a four- to six-lane freeway is more likely to be 300 to 500 feet. An estimated average right of way widths for the different typical cross section scenarios was used for estimating right of way costs and construction costs. The 3,000 ft. width allows for the design engineers to locate the roadway within the corridor, minimize the impacts and improve design aspects.

5.4 INTERCHANGE LOCATIONS

For purposes of this study, four interchanges were located within each of the three proposed corridors: a system interchange at each of the termini (I-65 and I-57) and conventional interchanges at IL 1/IL 394 and US 41.

While the locations of new interchanges on I-65 and I-57 are very preliminary at this stage of planning, certain basic assumptions were made. Providing new access to an existing interstate highway will not only require coordination with all NEPA requirements but also will require an Interchange Justification Study (IJ). These requirements are beyond the scope of this feasibility study; however, some of the criteria required in an IJ were considered in the placement of the proposed systems interchanges.

The IJ criteria requires that the proposed access will provide for all traffic movements and will be designed to meet or exceed current standards for federal-aid projects; that the locations are consistent with local and regional land use and transportation plans; and that the proposed access point appears to have no significant adverse impact to the safety and operation of the existing interstates.

Locating a new interchange on an existing interstate has a pronounced effect on the interstate operations. As a general rule, interchange spacing is 1 mile in urban areas and 2 miles in rural areas. The locations of new systems interchanges were based upon the urban highway scenario and spaced at a minimum of 1 mile from existing interchanges.

For purposes of this study, conventional interchanges were proposed along the Illiana alignment corridors at IL 1/IL 394 and US 41, the two four-lane divided intersecting routes within the study area. Using these interchange locations, the interchange spacings range from 7.5 to 11 miles in the three alternative corridors presented. The limited number of interchanges will discourage sprawl-induced land use patterns in the study area. It is anticipated that further study could identify additional access points as more detailed planning and design proceed. These access issues point to the need for local access management plans that will help adjacent communities plan for access to the facility and local road continuity near the facility.

5.5 Cross Section

Four different cross section scenarios were used for analysis of the proposed corridors as shown in the conceptual typical cross sections in Figures 5.1 to 5.4.

A 4-Lane Rural typical cross section, as shown in Figure 5.1, was analyzed for all three proposed corridors and consists of the following features:

- 4-12 ft. all purpose lanes;
- 12 ft. outside and 4 ft. inside paved shoulders;
- 100 ft. depressed median;
- Open drainage with 4 ft flat bottom ditches; and
- 350 ft. average right of way width.

A 4-Lane Urban typical section, as shown in Figure 5.2, was used for analysis of the northern corridor only in order to see a cost comparison of the rural versus urban facility. This typical cross section consists of the following features:

- 4-12 ft. all purpose lanes;
- 12 ft. outside and 14 ft inside paved shoulders;
- Standard concrete median barrier wall;
- Open drainage with 4 ft. flat bottom ditches on the outside and enclosed drainage along the barrier wall; and
- 300 ft. average right of way width.

A 6-Lane Rural typical cross section, as shown in Figure 5.3, was analyzed for all three proposed corridors, and consists of the following features:

- 6-12 ft. all purpose lanes;
- 12 ft. outside and 12 ft inside paved shoulders;
- 100 ft. depressed median;

- Open drainage with 4 ft. flat bottom ditches; and
- 400 ft. average right of way width.

Due to the potential for a significant amount of truck traffic being diverted to this corridor, consideration was given to include two truck-only lanes in each direction, in addition to the four general purpose lanes in the cross section. This section was analyzed for all three proposed corridors. The typical section with truck only lanes, as shown in Figure 5.4, consists of the following features:

- 2-12 ft. all purpose lanes on outside;
- 12 ft. paved shoulders adjacent to the all purpose lanes;
- Standard concrete median barrier separating all purpose lanes and truck only lanes;
- 2-13 ft truck only lanes;
- 12 ft. paved shoulders adjacent to the truck only lanes;
- 100 ft. depressed median between all eastbound and westbound lanes;
- Open drainage with 4 ft. flat bottom ditches on the outside with enclosed drainage along the barrier wall; and
- 450 ft. average proposed total right of way width.

Figure 5.1 Typical Cross Section, 4-Lane Rural

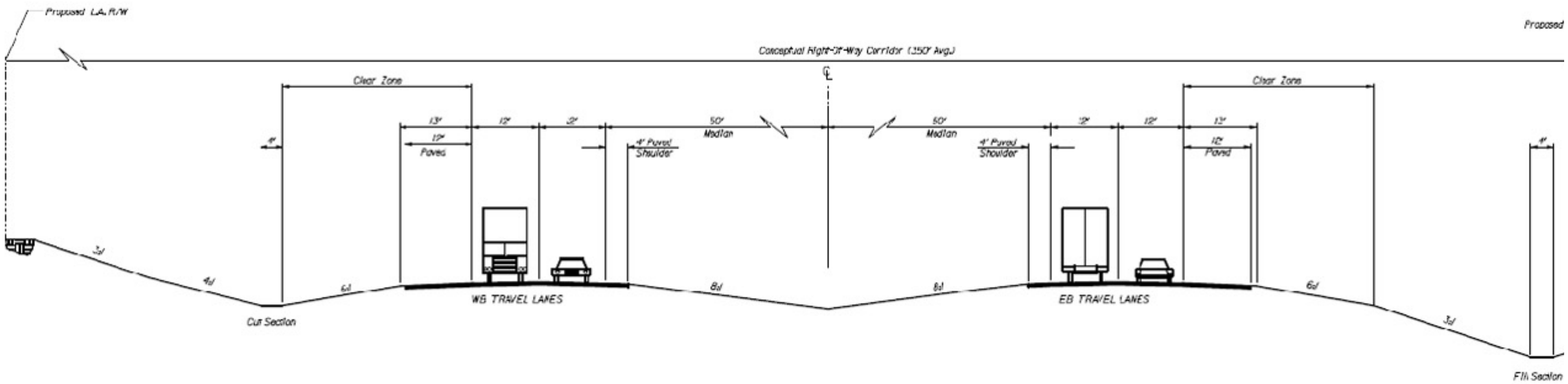


Figure 5.2 Typical Cross Section, 4-Lane Urban

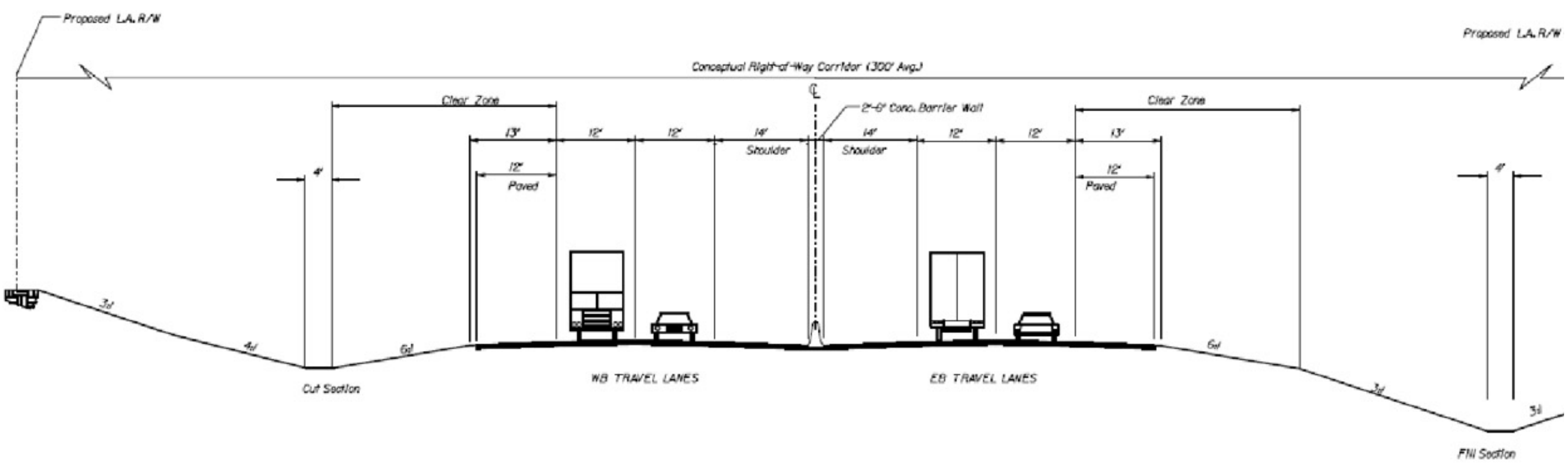


Figure 5.3 Typical Cross Section, 6-Lane Rural

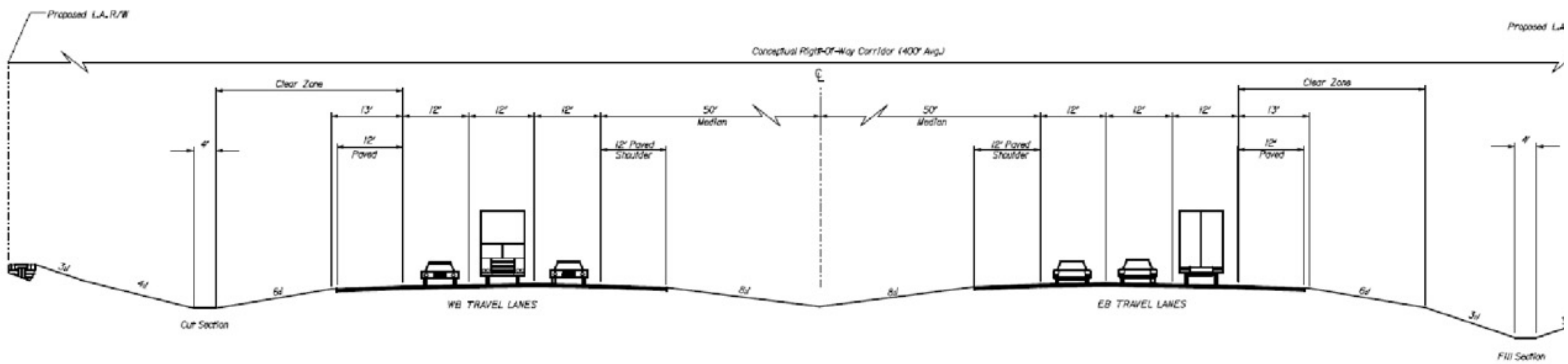
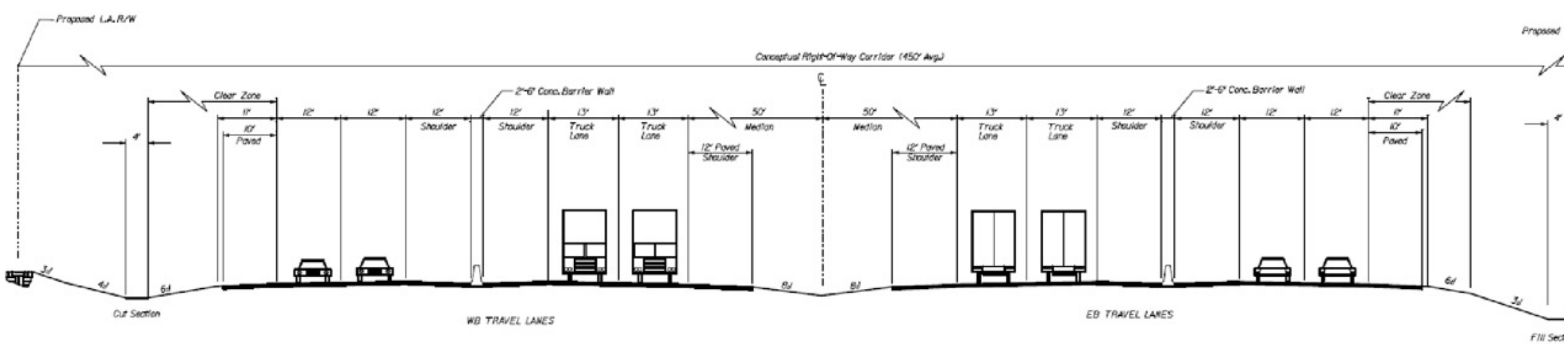


Figure 5.4 Typical Cross Section, 8-Lane Rural With Truck Only Lanes



5.6 MANAGED LANE ASSUMPTIONS

Implementing managed truck lanes introduces complexity into the roadway design. Building separate truck access to truck-only lanes will be dependent upon the financial feasibility at each individual location. In evaluating the 8-lane cross section scenario with truck only lanes, traffic projections have been based on the assumption that truck access to the managed lanes will be from the all-purpose lanes, therefore assuming that trucks would enter and exit via the all-purpose interchanges, which would require a weaving maneuver in order to enter or exit the truck only lanes. Cost estimates for this scenario are based on this same assumption, assuming a break in the median barrier to enable trucks to enter and exit the truck only lanes at interchanges.

5.7 RIGHT-OF-WAY

For projects in the early stages of development it is difficult to predict accurate right-of-way impacts. For the purposes of this study, an analysis of land impacted by the three conceptual alignment footprints was performed by assuming a standard right-of-way width for each of the typical cross section scenarios through the conceptual corridors and additional area (80 acres) per interchange.

The right of way widths that were used for each typical cross section scenario are:

- 4-Lane Rural – 350 feet;
- 4-Lane Urban – 300 feet;
- 6-Lane Rural – 400 feet; and
- 8-Lane Rural with Truck Only Lanes – 450 feet.

Through coordination with local land appraisers and from information from current similar construction projects in the study area, per acre land costs were generated. Due to nearby development, the land values in the northern part of the study area are substantially greater than in the southern portion. Through this coordination the following land values were used:

- $20,000 per acre for southern corridor (AC1);
- $40,000 per acre for central corridor (AC2); and
- $60,000 per acre for northern corridor (AC3)

Land areas were estimated through the corridors using the right-of-way widths and the interchange areas. For information only, estimations were made for classification according to existing probable use including residential, business, farmland, and wooded areas. The existing roadways and waterways were excluded from the total right-of-way.

5.8 Cost Estimates

The objective of this analysis was to identify broad corridors and conceptual preliminary alignments for the Illiana Expressway for use in developing early construction cost estimates. Three preliminary alignments were developed based on the three conceptual corridors as described in Section 5.9. For cost estimating purposes, costs for each of the three corridors were estimated using the three typical cross sections for the southern and central corridor alignments and four for the northern corridor alignment as described in Section 5.5 .

Estimates include costs for construction of the facility, land (right-of-way), maintenance, operations and preservation of the proposed facilities. Various assumptions and general observations were used in preparing these estimates due to the fact that in the early stages of planning, prior to the determination of a specific route location, detailed costs are difficult to determine.

The corridors were developed using aerial photography, environmental resource mapping, and field site visits. Assumptions used in determining costs included:

- Corridor Widths: A corridor width of 3000 feet for each of the three corridors was used. Estimated right of way widths of 300 ft. to 450 ft. were used for developing costs within each of the corridors. The alternative alignment corridors are designated as AC1 (southern alignment corridor), AC2 (central alignment corridor), and AC3 (northern alignment corridor).
- Roadway Section: For each alignment corridor, a cost analysis was performed for the three (four for AC3) typical cross section alternatives as described in Section 5.5.
- Pavement Thickness: A pavement thickness of 15 inches was used. For estimating purposes, concrete pavement was used.
- Interchanges: Systems interchanges at I-57 and I-65 were estimated for each of the three corridors. Conventional interchanges were estimated along each corridor at IL 1/IL 394 in Illinois and US 41 in Indiana.
- Construction Costs: Construction costs were determined using graphical information for each alignment corridor generated from the collected mapping and GIS data. Bridge length estimates were made based upon observed lengths of bridges on crossings adjacent to the proposed locations. These criteria were used to develop a Transportation Cost Estimator (TRACER) model. TRACER is a parametric cost estimating tool created to plan and budget for transportation construction projects at the predesign and preliminary design phases. TRACER employs pre-engineered model parameters and construction criteria to accurately estimate project costs with limited design information.

- Right–of–Way Costs: Due to the wide corridor width it is impractical to use costs per parcel at this study level. For the purpose of this study, right-of-way costs were determined by assigning a cost per acre for the land as described in Section 5.7 .
- Rest Areas: Rest areas and travel plazas were **not** included in these estimates.
- Toll Collection Facilities. Four collection facilities were estimated for each of the three alignment corridors. Electronic toll calculation transaction fees were not included. These fees are typically calculated on a per transaction basis.
- Police Patrols: Not included.
- Animal control: Not included.
- Insurance, Licenses, Permits, Taxes, Legal Counsel: Not included.
- Cost Mark Up: The INDOT mark-up for labor is 1.75, however a markup of 2 was used due to consideration for private sector participation in maintenance activities.
- Construction costs were estimated in 2008 dollars and projected to 2017 dollars at a 3.5% per year inflation rate.
- Per lane-mile costs for maintenance, operations and preservation were researched from actual Indiana Toll Road cost data and per INDOT's future planning data from the Highway Economic Resource System (HERS). Maintenance costs are in 2008 dollars.
- A lump sum cost for earthwork was added to the TRACER results to account for unknown amounts of borrow material due to the extremely flat terrain.

Costs estimates for each of the three alignment corridors are summarized in Tables 5.2 to 5.4.

Table 5.2 AC1 Cost Estimate Summary

Category	Four-Lane	Six-Lane	Eight-Lane
Construction (2017 Construction Year)			
Mainline Roadway	$368,735,246	$481,892,862	$705,283,936
Interchanges	$48,261,506	$48,261,506	$48,261,506
Bridges	$76,747,106	$98,979,350	$158,309,317
Design Consultant	$39,499,509	$50,330,697	$72,948,381
Total Program Cost	$533,243,366	$679,464,416	$984,803,139
Right-of-Way	$30,798,727	$34,156,413	$37,546,851
Routine Annual Maintenance			
ITS, Customer Service, Traffic Operations	$450,000	$450,000	$450,000
Snow and Ice Control	$600,000	$900,000	$1,200,000
Utilities (Signal, Sign and Facility Power)	$100,000	$100,000	$100,000
Road Maintenance Personnel	$720,000	$720,000	$720,000
Guardrail	$50,000	$50,000	$50,000
Landscaping	$20,000	$20,000	$20,000
Lighting, Signs, Painted Line, Other Traffic Controls	$30,000	$43,000	$57,000
Facilities (Nontoll-Related) Maintenance	$10,000	$10,000	$10,000
Pavement-Minor	$240,000	$240,000	$240,000
Total Routine Annual Maintenance	$2,220,000	$2,533,000	$2,847,000
Toll Collection			
Tolling Operations Personnel	$2,160,000	$2,160,000	$2,160,000
Facilities Maintenance	$40,000	$40,000	$40,000
Money Transport	$100,000	$100,000	$100,000
Electronic Equipment Maintenance	$50,000	$50,000	$50,000
Total Annual Toll Collection Expenses	$2,350,000	$2,350,000	$2,350,000
Pavement Maintenance (30-Year Cycle)			
Initial Joint Repairs (Year 10)	$2,850,000	$2,850,000	$2,850,000
Intermediate Joint Repairs (Year 20)	$5,700,000	$5,700,000	$5,700,000
Full Pavement Replacement	$79,749,091	$120,960,091	$162,171,091
Bridge Maintenance (75-Year Cycle)			
First Deck Overlay (Year 20)	$34,048,000	$47,712,000	$78,400,000
Second Deck Overlay (Year 35)	$34,048,000	$47,712,000	$78,400,000
Deck Replacement (Year 50)	$72,960,000	$102,240,000	$168,000,000
Superstructure Replacement	$121,600,000	$170,400,000	$280,000,000
Signs (30-Year Cycle)			
Intermittent Repairs (Year 5)	$260,000	$260,000	$260,000
With Pavement Replacement (Year 10, then Every 5 Years)	$1,500,000	$1,500,000	$1,500,000
Lighting (30-Year Cycle)			
Intermittent Repairs (Year 11, then Every 5 Years)	$1,000,000	$1,000,000	$1,000,000
With Pavement Replacement	$1,000,000	$1,000,000	$1,000,000
Toll Collection (5-Year Cycle)[b]			
Tolling Computer	$1,000,000	$1,000,000	$1,000,000
Roadside Equipment	$2,600,000	$2,600,000	$2,600,000

[a] An additional 5 percent is added to all periodic expenses to cover engineering and environmental costs.

[b] Costs also occur in Year 1.

Table 5.3 AC2 Cost Estimate Summary

Category	Four-Lane	Six-Lane	Eight-Lane
Construction (2017 Construction Year)			
Mainline Roadway	$352,690,649	$460,685,052	$675,181,548
Interchanges	$48,261,506	$48,261,506	$48,261,506
Bridges	$80,177,359	$102,361,880	$164,791,017
Design Consultant	$38,490,361	$48,904,675	$71,058,726
Total Program Cost	$519,619,876	$660,213,113	$959,292,797
Right-of-Way	$59,477,471	$68,246,380	$71,109,066
Routine Annual Maintenance			
ITS, Customer Service, Traffic Operations	$450,000	$450,000	$450,000
Snow and Ice Control	$575,000	$860,000	$1,150,000
Utilities (Signal, Sign and Facility Power)	$100,000	$100,000	$100,000
Road Maintenance Personnel	$720,000	$720,000	$720,000
Guardrail	$50,000	$50,000	$50,000
Landscaping	$20,000	$20,000	$20,000
Lighting, Signs, Painted Line, Other Traffic Controls	$28,000	$41,000	$55,000
Facilities (Nontoll-Related) Maintenance	$10,000	$10,000	$10,000
Pavement-Minor	$240,000	$240,000	$240,000
Total Routine Annual Maintenance	$2,193,000	$,2,491,000	$2,795,000
Toll Collection			
Tolling Operations Personnel	$2,160,000	$2,160,000	$2,160,000
Facilities Maintenance	$40,000	$40,000	$40,000
Money Transport	$100,000	$100,000	$100,000
Electronic Equipment Maintenance	$50,000	$50,000	$50,000
Total Annual Toll Collection Expenses	$2,350,000	$2,350,000	$2,350,000
Pavement Maintenance (30-Year Cycle)			
Initial Joint Repairs (Year 10)	$2,730,000	$2,730,000	$2,730,000
Intermediate Joint Repairs (Year 20)	$5,460,000	$5,460,000	$5,460,000
Full Pavement Replacement	$76,470,395	$115,946,195	$155,421,995
Bridge Maintenance (75-Year Cycle)			
First Deck Overlay (Year 20)	$33,096,000	$45,780,000	$75,012,000
Second Deck Overlay (Year 35)	$33,096,000	$45,780,000	$75,012,000
Deck Replacement (Year 50)	$70,920,000	$98,100,000	$160,740,000
Superstructure Replacement	$118,200,000	$163,500,000	$267,900,000
Signs (30-Year Cycle)			
Intermittent Repairs (Year 5)	$260,000	$260,000	$260,000
With Pavement Replacement (Year 10, then Every 5 Years)	$1,500,000	$1,500,000	$1,500,000
Lighting (30-Year Cycle)			
Intermittent Repairs (Year 11, then Every 5 Years)	$1,000,000	$1,000,000	$1,000,000
With Pavement Replacement	$1,000,000	$1,000,000	$1,000,000
Toll Collection (5-Year Cycle)[b]			
Tolling Computer	$1,000,000	$1,000,000	$1,000,000
Roadside Equipment	$2,600,000	$2,600,000	$2,600,000

[a] An additional 5 percent is added to all periodic expenses to cover engineering and environmental costs.

[b] Costs also occur in Year 1.

Table 5.4 AC3 Cost Estimate Summary

Category	Four-Lane Urban Design	Four-Lane Rural Design	Six-Lane	Eight-Lane
Construction (2017 Construction Year)				
Mainline Roadway	$347,456,145	$321,282,770	$419,439,926	$615,898,185
Interchanges	$48,261,506	$48,261,506	$48,261,506	$48,261,506
Bridges	$67,323,238	$67,323,238	$86,241,563	$139,935,530
Design Consultant	$37,043,271	$34,949,401	$44,315,440	$64,327,618
Total Program Cost	$500,084,160	$471,816,915	$598,258,435	$868,422,839
Right-of-Way	$73,682,070	$87,112,574	$91,441,909	$100,857,806
Routine Annual Maintenance				
ITS, Customer Service, Traffic Operations	$450,000	$450,000	$450,000	$450,000
Snow and Ice Control	$520,000	$520,000	$780,000	$1,100,000
Utilities (Signal, Sign and Facility Power)	$100,000	$100,000	$100,000	$100,000
Road Maintenance Personnel	$720,000	$720,000	$720,000	$720,000
Guardrail	$50,000	$50,000	$50,000	$50,000
Landscaping	$20,000	$20,000	$20,000	$20,000
Lighting, Signs, Painted Line, Other Traffic Controls	$25,000	$25,000	$37,000	$50,000
Facilities (Nontoll-Related) Maintenance	$10,000	$10,000	$10,000	$10,000
Pavement-Minor	$240,000	$240,000	$240,000	$240,000
Total Routine Annual Maintenance	$2,135,000	$2,135,000	$2,407,000	$2,740,000
Toll Collection				
Tolling Operations Personnel	$2,160,000	$2,160,000	$2,160,000	$2,160,000
Facilities Maintenance	$40,000	$40,000	$40,000	$40,000
Money Transport	$100,000	$100,000	$100,000	$100,000
Electronic Equipment Maintenance	$50,000	$50,000	$50,000	$50,000
Total Annual Toll Collection Expenses	$2,350,000	$2,350,000	$2,350,000	$2,350,000
Pavement Maintenance (30-Year Cycle)				
Initial Joint Repairs (Year 10)	$2,470,000	$2,470,000	$2,470,000	$2,470,000
Intermediate Joint Repairs (Year 20)	$4,940,000	$4,940,000	$4,940,000	$4,940,000
Full Pavement Replacement	$69,099,082	$69,099,082	$104,815,282	$140,531,482
Bridge Maintenance (75-Year Cycle)				
First Deck Overlay (Year 20)	$29,568,000	$29,568,000	$41,496,000	$68,208,000
Second Deck Overlay (Year 35)	$29,568,000	$29,568,000	$41,496,000	$68,208,000
Deck Replacement (Year 50)	$63,360,000	$63,360,000	$88,920,000	$146,160,000
Superstructure Replacement	$105,600,000	$105,600,000	$148,200,000	$243,600,000
Signs (30-Year Cycle)				
Intermittent Repairs (Year 5)	$260,000	$260,000	$260,000	$260,000
With Pavement Replacement (Year 10, then Every 5 Years)	$1,500,000	$1,500,000	$1,500,000	$1,500,000
Lighting (30-year cycle)				
Intermittent Repairs (Year 11, then every 5 years)	$1,000,000	$1,000,000	$1,000,000	$1,000,000
With Pavement Replacement	$1,000,000	$1,000,000	$1,000,000	$1,000,000
Toll Collection (5-Year Cycle)[b]				
Tolling Computer	$1,000,000	$1,000,000	$1,000,000	$1,000,000
Roadside Equipment	$2,600,000	$2,600,000	$2,600,000	$2,600,000

[a] An additional 5 percent is added to all periodic expenses to cover engineering and environmental costs.

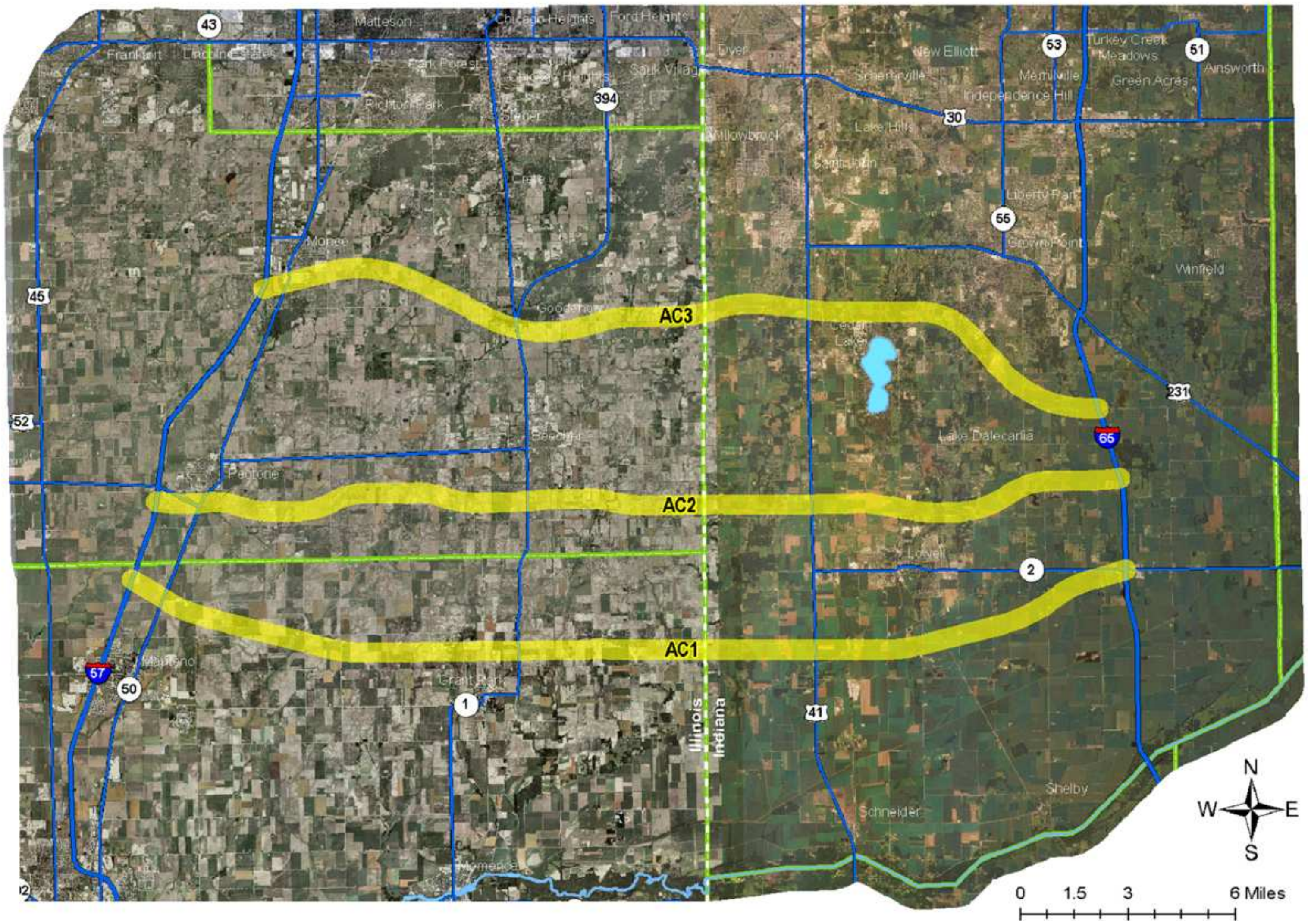
[b] Costs also occur in Year 1.

5.9 Corridor Locations

In a study area that is roughly 35 miles by 21 miles there are numerous potential scenarios for the proposed corridors. The scope of the feasibility study was to identify three corridors for the Illiana facility that are considered feasible corridor alternatives.

All three of the corridors connect I-57 in Illinois to I-65 in Indiana. For a comparison of corridors across the study area, a corridor was developed that runs through the northern portion of the study area, another one that runs through the central portion, and finally one that runs through the southern portion of the study area. The three alignment corridors are overlayed on an aerial photograph of the study area, shown in Figure 5.5.

Figure 5.5 Illiana Expressway Feasibility Study – Alternative Alignment Corridors (AC1, AC2 and AC3)



The southernmost corridor, designated as AC1, begins at I-57 just south of the Will-Kankakee County Line, midway between Peotone and Manteno. The corridor then heads in a southeasterly direction, crossing (Kankakee) County Highway 17 between CR E9000N and CR E10000N. At that point it turns easterly until crossing IL 1 approximately one mile north of CR E 9000N. The corridor continues east into Indiana, crossing US 41 just south of 197th Street and continuing easterly to Cline Avenue. At Cline Avenue, it proceeds in a northeasterly direction, tying into I-65 at the existing interchange with Indiana SR 2.

The central corridor, designated as AC2, begins just south of the Wilmington Road interchange with I-57 (the interchanges would need to be connected) just southeast of Peotone. The corridor runs easterly south of W. Corning Road until it crosses IL 1 between W. Corning Road and W. Kentucky Road. This corridor follows along and just north of an overhead power utility line in both Illinois and Indiana. The corridor continues straight easterly into Indiana and crosses US 41 between 157th and 173rd Avenue It then continues east until turning northeast just west of Holtz Road, continuing in this direction to 153rd Avenue. At this point it turns easterly to its connection with I-65, approximately two miles north of the SR 2 interchange.

The northern corridor, designated as AC3, begins southwest of Monee at the proposed access interchange for the South Suburban Airport (SSA)at I-57. The corridor then runs south of Monee along the northern edge of the ultimate acquisition boundary of the proposed SSA. At approximately Steger-Monee Road, it veers to the southeast until crossing IL 1 just south of Goodenow Road. The corridor continues along Goodenow Road into Indiana, crossing US 41 just north of 125th Avenue The corridor continues eastward just north of Cedar Lake and Lemon Lake Park. Just past Lemon Lake Park the corridor turns to the southeast, until 145th Street where it heads easterly until tying into I-65, approximately 2 ½ miles south of the interchange at US 231.

6.0 Model Development

6.1 Development of the Illiana Model

The Illiana model was specifically developed for this project and it was used to drive the Level 2 Traffic and Revenue forecasts for both the base-year and the future-year estimates. The Illiana model combines zone systems, highway networks, underlying socioeconomics, traffic count data, auto trip tables, and truck trip tables from various sources. The model maintained by the Chicago Metropolitan Agency for Planning (CMAP), the model maintained by the Northwestern Indiana Regional Planning Commission (NIRPC), and the Freight Analysis Framework (FAF) were the key inputs to the integrated Illiana model.

Base-year trip tables for 2007 and 2030 future-year trip tables for auto and truck travel were developed by integrating the CMAP and NIRPC models along with the FAF data. These trip tables are static in nature and remain the same for different socioeconomic scenarios and transportation system networks. As a result, the forecast estimates on Illiana traffic can be viewed as conservative as the structure of the model does not allow for additional trips to be added to the system as "latent demand" that reflects the introduction of the Illiana.

The Illiana model was linked and validated to observed auto and truck traffic counts to ensure that base-year estimates reflect existing traffic patterns as closely as possible. In addition, given the key role of truck traffic for the proposed Illiana facility, FAF estimates were used to anchor the base-year truck flows for "external" long distance truck trips.

Forecasts of the expected growth in auto traffic were obtained from growth assumptions that are embedded in the CMAP and NIRPC models. For truck movements within the study area (also known as internal-internal movements), growth estimates were derived from the existing CMAP and NIRPC models. Growth estimates for "external" truck traffic (truck flows with an origin, a destination or both outside the study area) were obtained by using the growth estimates from the FAF framework.

6.2 Study Area Background

Figure 6.1 shows a map of the study area with key highway facilities mentioned throughout this report.

I-94 is a key facility linking Detroit, Michigan, and points further east in Canada to destinations in Chicago and points west. Starting from the Michigan border all the way to the Lake/Porter County line, I-94 carries daily traffic volumes ranging from 33,000 vehicles to 73,000 vehicles closer to Chicago. This facility also carries a very high share of truck traffic with 13,000 to 24,000 trucks, corresponding to more than one third of total traffic.

I-80, which shares the I-90 designation between Cleveland and the Lake/Porter County Line, the I-94 designation between the Lake/Porter County Line and I-294, and the I-294 designation between I-94 and the I-80/I-294 split, links New York to the Midwest. East of I-94, I-80/I-90 is also known as the Indiana Toll Road (ITR). The Indiana Toll Road (ITR) stretches 157 miles across the northernmost part of Indiana from its border with Ohio to the Illinois State Line, where it provides the primary connection to the Chicago Skyway and downtown Chicago. The ITR links large cities on the Great Lakes with the Eastern Seaboard, carrying daily traffic volumes which range from 24,000 at the Lake/Porter County Line to 27,000 in eastern Indiana. It is important to note that trucks represent about 50 percent of traffic in each of these two locations with 12,500 and 13,000 daily trucks respectively.

The segment of I-80 that shares a designation with I-94 in Indiana is also called the Borman Expressway. This east-west highway segment also carries US 6, and a short section of US 41. The Borman Expressway is a major truck thoroughfare, providing a free alternative to the ITR/Chicago Skyway combination (Interstate 90) to the north. This section of I-80/I-94 carries a total of 119,000 vehicles, including 34,000 trucks.

I-65 is a north-south facility linking Gary to Indianapolis, destinations in central and southern Indiana and destinations in the South and the Gulf Coast (38,000 vehicles/14,000 trucks within the study area). I-57 also serves north-south travel movements linking Chicago with southern Illinois and points further south (13,000 to 15,000 total vehicles within the study area). Other less important facilities include east-west roadways IN 2 and US 20/35 in the east, US 30 which is an east-west facility south of the proposed Illiana expressway, US 6 just north of US 30, US 41 and IL 1/IL 394.

Table 6.1 shows the definition of vehicle categories used in traffic counts and in modeling. Categories 1 to 3 correspond to private automobiles while categories 4 or higher correspond to truck traffic. Among trucks, categories 8 and higher correspond to what are often referred to as “heavy” trucks, “multiple unit” trucks or “combination” trucks.

Figure 6.1 Illiana Expressway Study Area

Table 6.1 Classification of Autos and Trucks

FHWA Class	Type	IDOT	ISTHA	IN Toll Road	Skyway	CATS	NIRPC	IN SW	FHWA Class
1	Motorcycles	CAR	Car	Class 1	2 Axles	auto	auto	*auto*	1
2	Passenger Cars		Car	Class 1	2 Axles	auto	auto	*auto*	2
3	Other Two-Axle,Four-Tire Single Unit Vehicles		Car	Class 1/2	2 Axles	B	non-heavy	*auto*	3
4	Buses	SU	Small	Class 3	3 Axles	L	non-heavy	*auto*	4
5	Two-Axle, Six-Tire, Single Unit Trucks		Small	Class 3	2 Axles	B	non-heavy	*QRFM*	5
6	Three-Axle Single Unit Trucks		Medium	Class 4	3 Axles	B-L	non-heavy	*QRFM*	6
7	Four or More Axle Single Unit Trucks		Medium	Class 5	4 Axles	L-M	non-heavy	*QRFM*	7
8	Four or Less Axle Single Trailer Trucks	MU	Medium	Class 5	4 Axles	L-M	non-heavy	*QRFM*	8
9	Five-Axle Single Trailer Trucks		Heavy	Class 6	5 Axles	M	non-heavy	*TotFreight*	9
10	Six or More Axle Single Trailer Trucks		Heavy	Class 7	6 Axles	M	non-heavy	*TotFreight*	10
11	Five or Less Axle Multi-Trailer Trucks		Heavy	Class 6	5 Axles	M-H	non-heavy / heavy	*TotFreight*	11
12	Six-Axle Multi-Trailer Trucks		Heavy	Class 8	6 Axles	H	heavy	*TotFreight*	12
13	Seven or More Axle Multi-Trailer Trucks		Heavy	Class 8	7 Axles	H	heavy	*TotFreight*	13

Note: For purposes of the Illiana Study, vehicle categories 1-3 are treated as auto traffic and vehicle categories 11-13 are treated as heavy trucks.

6.3 TOLLS AND VALUES OF TIME

The Illiana toll model utilizes four market segments with different values of time to reflect the differences in the tradeoffs between travel time and cost that each tollroad user category is likely to make. To account for the impact of tolls on the Illiana expressway, the existing toll structure was maintained and the distance-based tolls charged for autos and trucks were assumed. The four market segments by vehicle type and trip purpose include the following:

- Auto drivers for work purposes,
- Auto drivers for non-work purposes,
- Non-heavy truck drivers, and
- Heavy truck drivers.

For each of these market segments, the distance-based toll rate for the Illiana was converted from a dollar per mile basis to a toll value in dollars. The toll values expressed in dollars were then combined with the unique value of time for each segment to convert the dollar toll amount into an equivalent measure of additional travel time (in minutes). The table below illustrates an example of this transformation for travelers who would traverse the entire length of the Illiana expressway.

Table 6.2 Tolls and Equivalent Travel Time Impedance by Market Segment

	Free Flow Time (Min)	Distance (Miles)	Toll Rate ($/Mile)	Value Of Time ($/hr)	Tolls in Dollars (Rate x Distance)	Equivalent Minutes Added to Travel Time (Min.)	Implied Travel Time (Free Flow Time + Toll Time Equiv.)
Auto-Work	25.5	25.5	0.04	22.11	1.02	2.77	28.27
Auto-Non Work	25.5	25.5	0.04	12.66	1.02	4.83	30.33
Non Heavy Trucks	25.5	25.5	0.06	26.74	1.53	3.43	28.93
Heavy Trucks	25.5	25.5	0.14	31.12	3.57	6.88	32.38

Source: Illiana Travel Demand Model and Existing Toll Structure

The distance used in Table 6.2 is for the entire length of the Illiana Expressway and the free flow time is estimated to be 60 MPH. The toll rates for each of the four market segments are $0.04 per mile for autos (both for work and non-work travel), $0.06 per mile for non-heavy trucks, and $0.14 per mile for heavy trucks. Vehicles in each market segment would need 25.5 minutes to traverse the entire

Illiana Expressway under free flow conditions and without tolls. When the impact of tolls on Illiana is included, the implied equivalent travel time for each market segment increases. However, the increase in travel time varies reflecting the values of time by segment and the varying toll levels for autos and trucks.

For example, the presence of tolls translates into an additional 4.83 equivalent minutes of travel time for non-work auto travel. This value is calculated by applying the $0.04 auto toll per mile to the 25.5 mile distance on the Illiana to determine the $1.02 toll that an auto driver would have to pay. The non-work auto value of time of $12.66 per hour ($0.211 per minute) is applied to the $1.02 toll to convert dollars into an additional 4.83 minutes of travel time.

In contrast, the additional travel time that reflects the same toll is smaller for the auto work travel market. The reason is that auto drivers on a work trip have a higher value of time and are therefore more willing to pay a premium to arrive at their destination faster. For the same distance and toll rate per mile, auto drivers on work-related travel are assumed to incur an additional travel time of 2.8 minutes.

According to Table 6.2, heavy trucks incur the greatest increase in travel impedance. This result reflects the higher tolls per mile that are charged to trucks despite the moderating effect of the high value of time exhibited by truck drivers. In contrast, work-related automobile users incur the least amount of additional travel impedance due to the combination of lower tolls and their higher value of time.

6.4 Base-Year Travel Demand

An important step in the Illiana model development effort was to ensure that the Illiana model successfully replicated the observed traffic conditions in the study area. To evaluate the robustness and accuracy of the model in the base-year, model results were compared to observed traffic counts on key locations.

Total Traffic on Screenlines

As a first and very important validation step, the traffic projected by the Illiana model was compared to "traffic screenlines" in the study area. These screenlines represent the total amount of east-west traffic that crosses the two county border locations shown in Figure 6.2.

Figure 6.2 shows the location of the two model screenlines. The objective is to accurately capture all traffic that is passing through these two county border locations since it represents to a great extent the traffic that is candidate for diversion to Illiana. Screenline # 2 is located at the Lake County / Porter County border east of I-65 which is a facility acting as a key potential feeder to Illiana. The second Screenline # 1 is located at the Illinois/Indiana border.

Screenline # 11 (also referred to as Screenline 1 "Full") includes all the roadways at the Illinois/Indiana border including those for which no traffic count data was available. We use Screenline # 1 to evaluate model performance against counts and we use the expanded definition of this Screenline to evaluate changes in flows across alternatives.

The Illiana model reflects total traffic in screenlines and key facilities very well and better than other existing models in the study area. Table 6.3 shows the estimates of total, auto, and truck traffic from the CMAP, NIRPC and the Illiana models for each of the two screenlines. These estimates highlight how well the Illiana model fits each of the two screenlines. For the Illiana model, Screenline # 2 at the Lake/Porter County border differs by less than five percent compared to observed traffic counts. In contrast, the CMAP model overpredicts total traffic by 19 percent and the NIRPC model underpredicts total traffic by 18 percent.

Screenline # 1 at the Illinois/Indiana border performs even better in the Illiana model and differs by just over three percent compared to observed traffic counts. In contrast, both the CMAP and NIRPC models underpredict the observed traffic by 15 and 23 percent respectively.

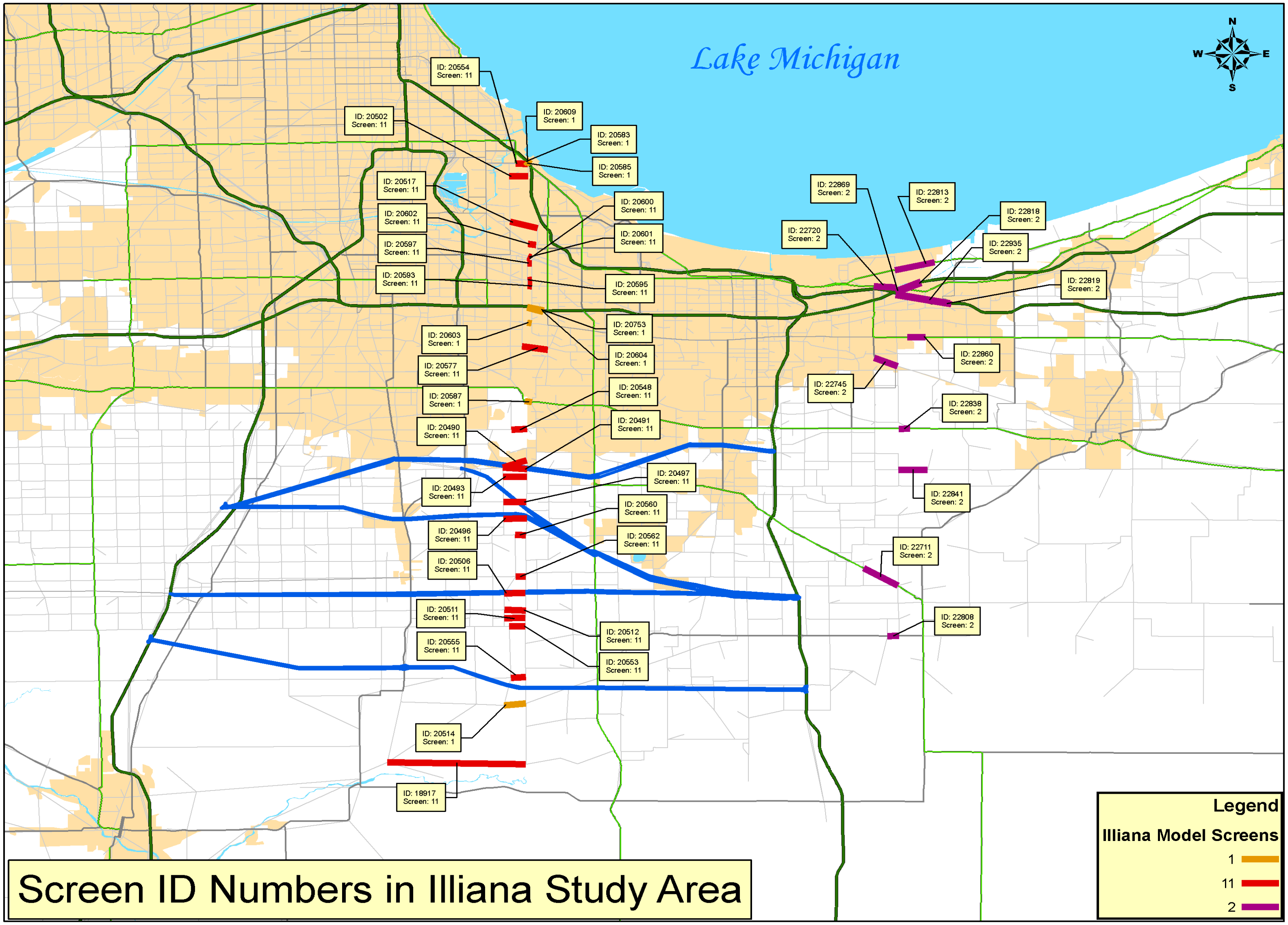
These results suggest that the Illiana model properly reflects the total amount of east-west oriented traffic. This correspondence between modeled and observed flows is critical since traffic that travels through these two key sections of the study area will affect to a great extent the projected utilization of Illiana.

Table 6.3 Comparison Between Observed and Modeled Traffic Flows

Screenline	CMAP Model 2007	NIRPC Model 2005	Illiana Model 2007	Observed Traffic Counts
Screenline 1	294,060	267,677	330,062	346,004
Screenline 2	228,588	156,941	185,846	192,057

Source: Illiana, CMAP and NIRPC Models and INDOT and IDOT Traffic Counts

Figure 6.2 Screenline Locations in the Illiana Study Area



Total Traffic on Individual Highways

The second critierion for highway validation is the extent to which the Illiana model can reflect the total traffic observed on key individual facilities in the study area. A comparison between the observed traffic counts and estimates of traffic obtained by the Illiana model is shown in Table 6.4. The single key observation is that the Illiana model performs better not only at a screenline level but for every one of the key facilities of interest to the Illiana expressway when compared to the CMAP and the NIRPC models.

There are only two exceptions where the Illiana model performs worse – on I-94 north of I-80 where the Illiana model underpredicts the counts by an average of seven percent, and on I-294 north of I-80 and west of I-57 where the Illiana model underpredicts traffic by an average of nine percent.

The modeled traffic flows on facilities that are of great interest to Illiana are also very close to the observed traffic counts with one exception (Table 6.4):

- Traffic on I-65 is within less than seven percent of the observed counts in three locations including south of the southern Illiana alignment, south of the middle Illiana alignment, and south of the Borman.
- Traffic on I-57 near the middle of the Illiana alignment is equal to the traffic counts. In two other locations the difference is less than 10 percent and in a fourth location south of the southern Illiana alignment it varies by 25 percent.
- Traffic on I-80/I-94 near Gary is carried by the Borman Expressway with a total of 150,000 vehicles per day. These flows are underpredicted by the model by less than seven percent.
- Similarly, traffic on I-80/I-294 west of the Tri-state is also underpredicted by less than seven percent when compared to traffic counts. This facilty carries about 140,000 total vehicles each day.
- Traffic on I-94 east of I-80/I-90 near Portage (total traffic of 70,000 vehicles) and on I-94 north of I-80 (total traffic of 155,000 vehicles) is underpredicted by the model between two and eight percent when compared to observed traffic counts.
- The one exception is I-80/I-90 near Portage/east of I-94 and the continuation of this facility with I-90 near Gary and east of IN 912. In these two locations, the model overestimates total traffic (Table 6.4). It should be noted that the Illiana model still far outperforms the CMAP and NIRPC models in these two locations.

Although this discrepancy is noted because of its potential impact on the study area, it should also be noted that the level of traffic on I-80/I-90 near Portage is much lower than I-94 in two comparable locations. I-80/I-90 traffic carries approximately 30,000 versus 70,000 vehicles on I-94 and 36,000 versus 155,000 vehicles in the second location near Gary.

Table 6.4 Observed and Modeled Traffic on Key Highway Facilities

ID	CountID	Description	Base Count	Auto Work	Auto Other	Non Heavy Trucks	Heavy Trucks	Total	Difference	Percent Difference
22869	1	I-94 East of I80/90 near Portage	34,194	5,692	13,271	3,284	9,384	31,631	-2,563	-7%
22818	2	I-94 East of I80/90 near Portage	34,194	5,787	15,015	3,468	9,405	33,674	-520	-2%
22935	3	I80/90 East of I-94 near Portage	15,575	6,672	7,476	3,097	7,461	24,706	9,131	59%
22819	4	I80/90 East of I-94 near Portage	15,575	5,700	5,567	2,600	7,269	21,136	5,561	36%
21873	5	I-90 East of IN-912 near Gary	18,038	10,209	5,007	5,797	956	21,969	3,931	22%
21523	6	I-90 East of IN-912 near Gary	18,038	10,536	4,318	6,336	884	22,074	4,036	22%
21600	7	I-80/94 (Borman) East of IN-912 near Gary	75,520	10,243	29,354	13,216	17,511	70,325	-5,195	-7%
21493	8	I-80/94 (Borman) East of IN-912 near Gary	75,520	10,308	30,060	12,976	17,632	70,977	-4,543	-6%
22365	9	I-65 South of I-80/94 (Borman)	39,296	6,538	27,670	2,818	4,530	41,556	2,260	6%
22358	10	I-65 South of I-80/94 (Borman)	39,296	6,766	27,526	3,217	4,629	42,138	2,842	7%
20203	11	IL-394 (Bishop Ford) South of I-80/294	28,473	10,646	19,102	8,623	757	39,128	10,655	37%
20187	12	IL-394 (Bishop Ford) South of I-80/294	28,473	10,340	18,542	8,230	745	37,857	9,384	33%
20218	13	I-80/294 (TriState) West of I-94 (Bishop Ford)	69,023	8,303	23,612	21,788	15,503	69,206	183	0%
19173	14	I-80/294 (TriState) West of I-94 (Bishop Ford)	69,023	8,254	23,696	20,763	15,427	68,140	-883	-1%
15783	15	I-57 South of I-80	29,021	5,108	15,139	6,972	2,982	30,201	1,180	4%
15733	16	I-57 South of I-80	29,021	5,585	16,352	7,095	3,029	32,060	3,039	10%
20322	17	Chicago Skyway	23,850	13,282	1,800	12,255	14	27,351	3,501	15%
20169	18	Chicago Skyway	23,850	13,849	2,258	12,160	43	28,309	4,459	19%
20086	19	I-94 North of I-80	78,563	17,095	45,936	7,742	2,688	73,461	-5,102	-6%
19984	20	I-94 North of I-80	78,563	16,662	44,996	7,925	2,721	72,305	-6,258	-8%
17445	21	I-57 West of I-294 Junction	52,698	17,171	32,203	6,122	1,801	57,297	4,599	9%
17820	22	I-57 West of I-294 Junction	52,698	17,637	32,805	6,120	1,809	58,372	5,674	11%
15791	23	I-294 North of I-80 & West of I-57	61,983	4,562	21,060	21,353	10,202	57,178	-4,805	-8%
14381	24	I-294 North of I-80 & West of I-57	61,983	4,363	19,961	21,074	10,221	55,618	-6,365	-10%
24175	25	I-57 South of Middle Alignment	15,574	2,502	6,322	3,991	2,789	15,604	30	0%
25834	26	I-57 South of Middle Alignment	15,574	2,504	6,284	3,998	2,788	15,573	-1	0%
13941	27	I-57 South of Southern Alignment	13,487	3,218	7,884	2,311	2,987	16,401	2,914	22%
13506	28	I-57 South of Southern Alignment	13,487	3,527	8,575	2,179	2,944	17,225	3,738	28%
22519	29	I-65 South of Southern Alignment	18,965	0	11,669	0	7,155	18,824	-141	-1%
25772	30	I-65 South of Southern Alignment	18,965	0	11,671	0	7,152	18,823	-142	-1%
22491	31	I-65 South of Middle Alignment	17,190	297	10,359	201	6,337	17,194	4	0%
22462	32	I-65 South of Middle Alignment	17,190	271	10,262	199	6,368	17,100	-90	-1%
			1,182,900	**243,628**	**555,752**	**237,911**	**186,123**	**1,223,414**	**40,514**	**3%**

Source: Illiana Model and IDOT and INDOT Traffic Counts

Mix of Auto and Truck Traffic on Key Facilities

The composition of traffic in the study area is another important determinant of the expected traffic on the Illiana tollway. In this section we discuss the truck and auto volumes that are currently using important roadway facilities in the study area. These flows are later compared to the Illiana model results to ensure that the model properly reflects the mix of auto and truck traffic.

Northwest Indiana is at the crossroads of a very high level of truck traffic in both the east-west and north-south directions. The "percent truck traffic" statistic is used as a measure of model performance along with total truck traffic. Figure 6.3 shows both the observed total traffic counts and the percent truck traffic for the base year for key east-west and north-south movements in the study area. We discuss the most important patterns by examining facilities starting at the eastern edge of the study area.

I-94 is a key facility linking Detroit, most of Michigan, and points further east in Canada to destinations in Chicago and points west. Starting from the Michigan border all the way to the Lake/Porter County line, I-94 has a very high share of truck traffic that can be summarized as follows:

- I-94 total traffic grows from a low of 33,500 vehicles at the eastern edge of the study area to a high of more than 73,000 vehicles just before the merge with I-80. Total truck traffic increases from 13,200 to 24,000 trucks per day while auto traffic increases at a higher rate closer to the Chicago metro area. As a result, percent truck traffic is maintained at a high level but is gradually reduced from a high of 40 percent to a low of 33 percent.
- At the eastern edge of the study area, I-94 has a share of 39 percent truck traffic approximately one mile east of the US 20/ US 35 interchange with a total of 13,200 trucks (Figure 6.3).
- A little further west, I-94 has a truck share of 34 percent about 1.5 miles east of SR 49 at the (Porter/La Porte County line) with a total of 18,800 trucks.
- I-94 has a truck share of 33 percent just two miles east of the junction with I-80 at the Lake/Porter County line. Despite the drop in the percent of trucks in traffic, total truck traffic has continued to increase to a total of 24,100 trucks.

I-80 shares the I-90 designation starting west of Cleveland and continuing westward to the Lake/Porter County line, linking key activity centers in the Midwest and points further west.

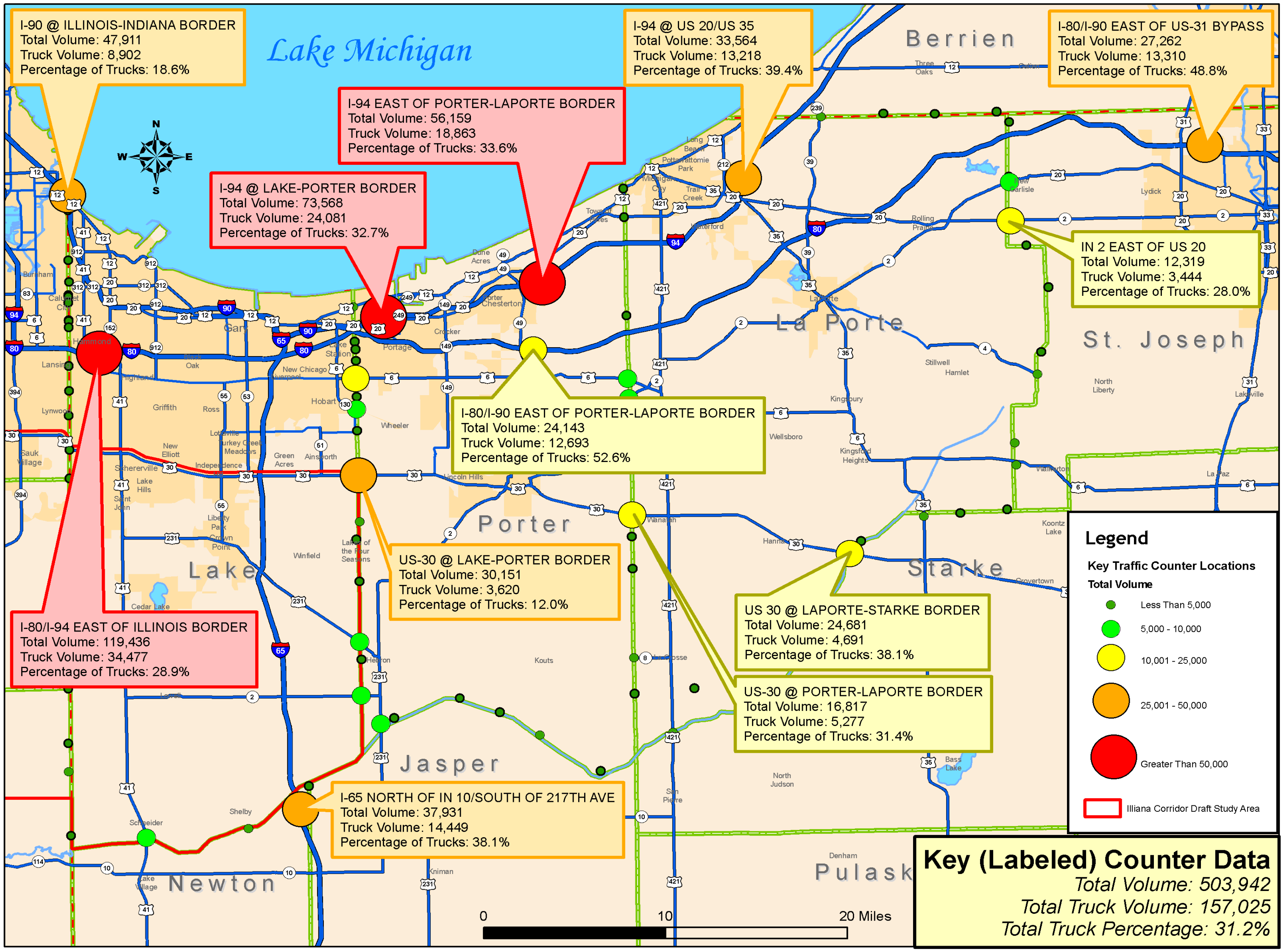
- I-80 total traffic, truck traffic, and truck percent traffic are relatively stable starting at the eastern edge of the study area all the way to the Porter/La Porte County line. There is a total of 24,000 to 27,000 vehicles on the length of this facility, with a total of about 13,000 trucks, accounting for roughly 50 percent of the total traffic (Figure 6.3). This high percentage of truck traffic is a key observation related to the potential Illiana traffic.

- At the eastern edge of the study area, I-80 carries 27,000 vehicles and 13,300 trucks reflecting a truck traffic share of 49 percent.
- I-80 shows a similarly high share of truck traffic at the Porter/La Porte County line with 24,100 total vehicles and a share of 52 percent truck traffic. This corresponds to a total of 12,700 trucks at this location.
- Following its merge with I-94, the I-80/I-94 facility carries an even higher total traffic and truck traffic with a total of 119,000 vehicles and 34,500 trucks. Because of the increase in auto traffic and despite the tripling of truck traffic, the percent of traffic that trucks represent falls to 29 percent at the Illinois / Indiana border (Figure 6.3).

I-65 carries a total of 38,000 vehicles south of the southern Illiana alignment which grows to a total of almost 80,000 vehicles south of the Borman expressway. Near the Illiana junction, I-65 carries a 38 percent truck traffic share that corresponds to about 14,500 trucks (Figure 6.3). This north-south facility is key to the Illiana success since it offers an attractive bypass to the congested Borman expressway further north.

I-57 traffic grows from 27,000 total vehicles south of the southern Illiana alignment to 30,000 vehicles close to the middle Illiana alignment, to 58,000 vehicles south of I-80 and to a high of 105,000 vehicles north of I-80. The traffic at the Kankakee/Iroquois County line near the Illiana junction is about 30,000 vehicles with roughly a 20 percent truck traffic share and 5,700 trucks .

Figure 6.3 Truck Traffic and Total Vehicle Traffic in Key Highway Locations



7.0 Traffic Forecasting

7.1 Methodology

The Illiana model described in detail in Section 6.0 was developed by combining elements of the CMAP and NIRPC regional models and the Freight Analysis Framework flows for truck movements and was validated using INDOT and IDOT traffic counts. The Illiana model accurately represents total flows in the study area and properly reflects the mix of auto and truck traffic on key facilities in the base year conditions.

The Illiana model was applied to develop both base and future year estimates for the utilization of the Illiana Expressway. The application of the Illiana model in the base year allowed us to isolate the effects of the proposed alignment and distinguish it from the growth-related changes in travel patterns. The application of the Illiana model in the future year took into account both the network-related impacts of the expressway and the growth-related effects on travel flows that are reflected in the model forecasts.

First, the impact of introducing the Illiana Expressway was examined using the base year (2007) conditions. This allowed us to control for the network-related performance impacts of adding Illiana without changes in the overall trip table due to the expected growth in auto and truck travel. Results from two model runs were analyzed to compare the base year No-Build alternative and a base year Illiana Build alternative. The objective was to ensure that changes in the overall traffic patterns were reasonable reflecting the good performance of the Illiana model.

Second, the Illiana model was applied in the future year (2030) to estimate the utilization of the Illiana Expressway using assumptions about growth in auto and truck travel. The future year No-Build model run reflects only the impacts of auto and truck traffic growth without the presence of the Illiana expressway. A range of Build model runs also were conducted to evaluate the impact of different alignments, lane configurations, and toll levels on the expected Illiana utilization. An "existing" toll rate was derived from an average of per-mile toll rates for autos, light trucks, and heavy trucks on the Indiana Toll Road and the Illinois Tollway system. These averages were weighted based on existing electronic toll collection usage.

In this section, we discuss the results of the No-Build alternative as well as expected usage of the Illiana Expressway along the northernmost corridor alignment (AC3) with two truck-only lanes and two mixed travel lanes per direction and a toll level that is double the existing toll rate for auto and truck traffic.

7.2 DIVERSION POTENTIAL TO ILLIANA

Overview of Traffic Patterns

The orientation, location, and length of the proposed Illiana Expressway will determine the extent to which it will draw auto and truck traffic from other highway facilities in the study area. To put the Illiana forecasts in context, we discuss the total daily traffic and truck traffic volumes on facilities from which Illiana is expected to draw a share of existing traffic. In general, it is expected that Illiana will draw a mix of truck and auto traffic and will provide a more appealing option to long-distance traffic (refer to Figure 6.3).

Truck movements most likely to benefit from the proposed Illiana Expressway include those with destinations in the Chicago metropolitan area that would use Illiana to bypass congestion points on I-80 (Borman). In addition, truck movements that seek to bypass the Chicago metropolitan area and its congestion would be candidates for Illiana. It is expected that heavy trucks serving long-distance origin-destination pairs are more likely to benefit from Illiana as a bypass option.

- **I-65 Traffic:** There currently are 38,000 vehicles and 14,500 trucks on I-65 near the Illiana junction. I-65 is key to Illiana because it offers a reasonable bypass of I-80 and its most congested section on the Borman that is west of I-65 near Gary. I-65 traffic to and from the north that are not destined to or originate near Chicago, particularly trucks, may find the Illiana to be an attractive route option to bypass the Chicago metropolitan area.
- **I-57 Traffic:** There are 5,700 trucks on I-57 near the Kankakee/Iroquois County line. For trucks to and from the north, the diversion to Illiana is expected to be low given the orientation of the Illiana expressway. However, for southeast-bound traffic, the Illiana provides a reasonable and attractive alternative.
- **I-80/Borman Traffic:** There currently are more than 70,000 trucks on I-80/Borman near the Indiana/Illinois border. Diverting to the current Illiana alignment provides a realistic option only for a small portion of this traffic that seeks to bypass the Chicago metro area oriented to or from the south or the southwest.
- **I-94 Traffic:** There are 24,000 trucks on I-94 two miles east of the junction with I-80 at the Lake/Porter County line. The likelihood for diversion to Illiana is expected to be rather low. Again, a small portion of trucks headed to or from the south and southwest that can avoid the Chicago metro area are likely to divert to Illiana.
- **U.S. 30 Traffic:** There are about 3,600 trucks daily on U.S. 30 at the Lake/Porter County line and a total of 30,000 daily vehicles. It is very likely that a large portion of this traffic serves local origins and

destinations in the general vicinity of the Illiana expressway, resulting in potential for diversion to the Illiana.

Auto movements in the study area are different in nature compared to truck traffic since auto trips are more likely to have an origin or a destination within the broader Chicago metropolitan area. Auto movements that are more likely to benefit from Illiana include shorter, local flows between origins and destinations that will be better served as a result of the improved accessibility offered by the Illiana Expressway. Improved accessibility to areas around the Illiana entrance and exit ramps would support the auto travel market in the study area. The same benefits also may be applicable to some extent for nonheavy truck movements that are more "local" in nature and therefore more similar to auto flows.

Estimated Traffic Flows

A range of alternative alignments, configurations, and toll levels were evaluated:

- Three alignment options included the southern (AC1), central (AC2), and northern (AC3) corridors shown previously in Figure 5.5.
- Three configuration options: two mixed traffic lanes per direction; three mixed traffic lanes per direction and an option with two mixed traffic lanes and two truck-only lanes per direction.
- Toll levels ranged from free to six times the current level of "existing" auto and truck tolls.

The first step in the evaluation process was to compare the total traffic that the model estimates flowing through each of the two screenlines shown in Figure 6.2. Screenline #1 is used to account for traffic crossing the Illinois/Indiana border and Screenline #2 is used to measure the traffic crossing the Lake/Porter County line. A comparison of the observed and modeled traffic flows crossing each screenline now and in the future is shown in Table 7.1.

Table 7.1 Total Traffic Crossing Study Area Screenlines

Screenline	Observed Traffic	No-Build 2007	No-Build 2030	Build (Illiana) 2030
Screenline #1 Illinois-Indiana Border	346,004	330,062	390,371	382,568
Screenline #2 Lake-Porter Co Line	192,057	185,846	251,673	251,515

Source: Observed traffic counts from INDOT and IDOT. Model results obtained from the Illiana model. Illiana Expressway alternative is AC3 with double the existing toll and with two mixed traffic lanes per direction and two truck-only lanes per direction.

The first comparison was made between the observed traffic counts and the No-Build conditions produced by the model for year 2007. The difference between observed and modeled flows is just above three percent for Screenline #1 and below five percent for Screenline #2 (Table 7.1). This close match indicates that the Illiana model slightly underestimates the existing traffic conditions in the study area.

A second comparison was made for year 2030 by applying the Illiana model with and without the proposed Illiana Expressway in the Existing and Committed highway network. The results of this comparison confirm that the trip table for the study area remains the same regardless of the network configuration. As shown in Table 7.1, the traffic flow on Screenline #1 is off by just two percentage points while the traffic flow estimates for Screenline #2 are off by less than one tenth of one percent. The close overall correspondence confirms the good performance of the model and the trip tables that reflect the travel patterns.

A third comparison was made between the No-Build conditions for 2007 and the No-Build conditions for 2030 to reflect the projected growth in traffic in the study area. Traffic is expected to grow by more than 60,000 daily vehicles in both screenlines. This represents a growth of 18 percent over almost 25 years for the traffic crossing the Indiana-Illinois border. The percentage change for the traffic crossing the Lake-Porter County line is about 35 percent. This reflects the greater growth in traffic projected for the Indiana portion of the study area, including local trips on and around the Illiana Expressway.

The final comparison of traffic patterns between the 2030 No-Build and the 2030 Illiana alternative AC3 focused on traffic on individual facilities that make up Screenlines #1 and #2. An examination of the individual facilities shown in Tables 7.2 and 7.3 highlights the differences by facility and auto/truck traffic attributable to growth between 2007 and 2030.

Comparisons between Tables 7.3 and 7.4 show that the total trip tables are the same for the 2030 No-Build and the Illiana alternative AC3. This reflects the stability of the Illiana model while differences in individual links highlight differences in traffic on individual facilities that can be attributed to Illiana:

- Traffic on individual facilities that make up Screenline #1 have been affected in expected ways for both auto and truck traffic movements. These patterns suggest that the model has reassigned auto and truck trips to the network to take advantage of the Illiana facility.
- The same patterns do not appear to affect Screenline #2. This suggests that the model properly assigns auto and truck trips to the network and that the Illiana is not likely to significantly affect travel patterns east of Screenline #2.
- U.S. 30 traffic decreases by about 2,500 vehicles out of a total of 36,700. It is important to note that this decrease reflects changes in auto and

nonheavy truck traffic consistent with the local nature of traffic on this facility.

- I-80/I-94 traffic also is reduced by about 2,200 vehicles out of a total of 98,500. This reduction is concentrated almost exclusively on heavy trucks while auto traffic is not affected. This pattern is consistent with the potential role of Illiana in attracting long-distance trucks on I-80/I-94 that seek to bypass the Chicago metropolitan area.

7.3 Projected Illiana Utilization

Proposed Illiana Expressway alternative AC3, with four general purpose lanes, four truck only lanes, and a toll rate double the existing rates in the area, is projected to be used daily in the year 2030 by 31,500 to 35,500 vehicles traversing its sections between I-65 and I-57 and its core section between U.S. 41 and IL 1/IL 394. This Illiana alternative is expected to carry a high proportion of truck traffic with 12,000 to 13,300 trucks on the truck-only lanes alone, representing 38 to 41 percent of total traffic on Illiana segments (Figure 7.1). This pattern of truck traffic is consistent with the mix of traffic on other key highways in the study area and also reflects the higher growth in truck traffic than auto traffic that is expected over the next 30 years.

Figure 7.1 shows the estimated future year traffic on highway facilities parallel and perpendicular to the proposed Illiana under the No-Build scenario in 2030. Figure 7.2 shows the estimated auto and truck flows on the same highways adjacent to the Illiana, based on alignment alternative AC3 described above. Volumes on the Borman Expressway are expected to reach a high of almost 194,000 daily vehicles while volumes on U.S. 30 reach a high of almost 75,000 daily vehicles. Future year traffic forecasts on north-south facilities also is shown for key highways, including I-65 and I-57 at the boundaries of Illiana as well as U.S. 41 and IL 1/IL 394 intersecting the proposed Illiana facility.

The contrast between the No-Build and Build options helps identify the impact of the Illiana expressway on traffic in the study area. Comparisons between Figures 7.1 and 7.2 for each individual facility suggest the following:

- There is an increase of 5,000 to 6,000 vehicles on northbound and southbound I-65 near the junction with Illiana, which contributes to the traffic expected to use the Illiana Expressway.
- There is an increase of 5,000 vehicles in the northbound direction on I-57 that also can be attributed to traffic from the Illiana Expressway.
- There is an increase of 7,700 daily vehicles in northbound traffic on U.S. 41.
- There is an expected decrease in traffic on both U.S. 30 and the Borman Expressway although these changes represent a small percentage of total traffic on each of these facilities.

In addition to the alternative discussed above (AC3, two times the existing toll rate, eight-lane cross section), the Illiana model also was run for 16 additional alternatives. Traffic volumes for each of these alternatives, as predicted by the Illiana model for the year 2030, are shown in Table 7.2.

7.4 THE IMPACT OF GROWTH PROJECTIONS

A key final question that is related to the projected Illiana utilization in the future is the expected growth in auto and truck traffic between 2007 and 2030. The projected volume increases both systemwide and on individual facilities reflect the underlying assumptions about the expected auto and truck traffic growth.

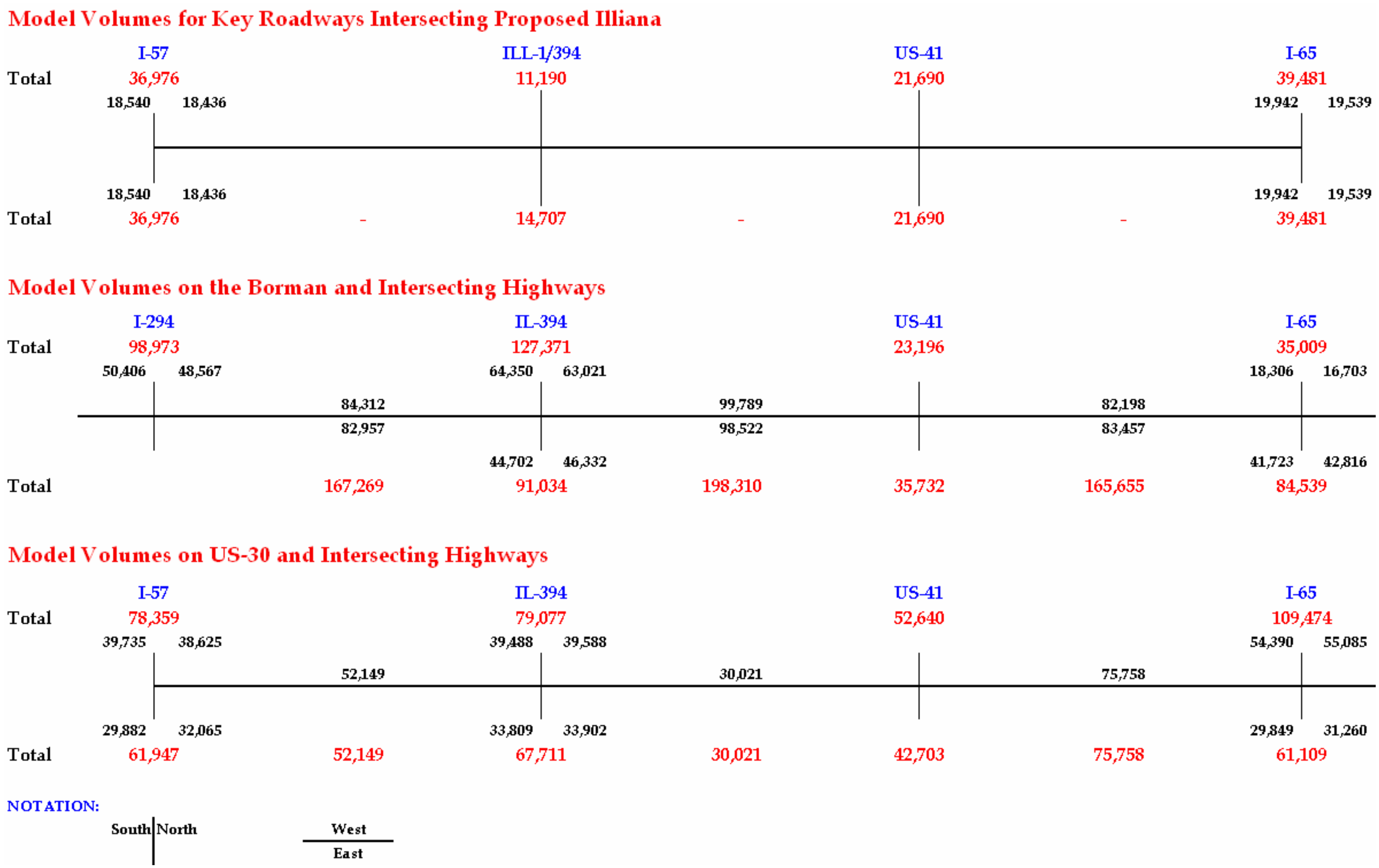
This study relied on the growth assumptions provided by the Freight Analysis Framework for all truck traffic that has an origin and/or destination outside the study area. For external-internal and internal-external truck movements, the truck traffic growth estimates were applied to base year truck volume estimates that were adjusted according to the observed truck traffic counts. For all auto movements and for internal-internal truck traffic within the study area, the growth estimates from the CMAP and NIRPC modeling platforms were used.

At the national level, growth in truck traffic is expected to fast outpace the growth in auto traffic at a national level according to a number of planning studies. The same pattern of higher truck growth is expected to hold in the Illiana corridor especially given the current large role of long-distance truck traffic in the study area.

Base year conditions and future year No-Build model results suggest a much higher increase in truck traffic compared to auto and nonheavy truck traffic in the study area:

- At the Indiana-Illinois border (Screenline #1), we forecast an increase of 13 percent (0.5 percent per year) for auto and nonheavy truck traffic compared to an increase of almost 60 percent (2.1 percent per year) in heavy truck traffic from 36,000 to over 57,600 daily trucks.
- At the Lake/Porter County line in Indiana (Screenline #2), auto and nonheavy truck traffic is expected to grow by 29 percent (1.1 percent per year) compared to an increase of 63 percent (2.2 percent per year) in truck traffic.

Figure 7.1 Modeled Volumes for the 2030 No-Build Alternative



Source: Illiana model application for the 2030 No-Build conditions.

Figure 7.2 Modeled Volumes for 2030 Illiana Alternative AC3

Source: Illiana model application for the 2030 Illiana alternative using future year trip tables, the Existing and Committed network, and the Illiana Expressway facility. The Illiana Expressway alternative has four lanes per direction with two dedicated truck lanes and two mixed traffic lanes, and is located in alignment Corridor 3. Toll levels are assumed at twice the level of existing tolls.

Table 7.2 Modeled Volumes for 2030 Illiana Alternatives

Alignment Corridor	Total Lanes	Toll Rates Relative to Existing Average	I-57 – IL 1	IL 1 – U.S. 41	U.S. 41 – I-65
1	4	2x	16,237	16,443	17,764
2	4	2x	21,593	18,981	24,697
3	4	No toll	34,859	29,717	31,741
3	6	No toll	40,961	36,408	37,796
3	8	No toll	43,458	40,441	41,090
3	4	1x	32,430	27,593	28,953
3	6	1x	37,723	32,995	33,589
3	8	1x	39,446	35,620	36,410
3	4	2x	29,162	25,323	26,179
3	6	2x	34,635	29,376	29,595
3	8	2x	35,682	31,475	31,680
3	4	4x	21,522	19,903	21,095
3	6	4x	23,763	21,743	23,310
3	8	4x	24,181	22,912	24,417
3	4	6x	14,362	14,805	15,757
3	6	6x	15,927	15,871	16,900
3	8	6x	16,121	16,246	17,487

Source: Illiana model application for the 2030 Illiana alternatives.

8.0 Benefits, Impacts and Opportunities

This section of the Illiana Expressway Feasibility Study report documents the anticipated benefits, impacts and opportunities that would likely accrue as a result of constructing the proposed expressway. Many of the assessments which follow have been derived from output from the Illiana model and post-processing of the data obtained from the model. The information in this section is subsequently used as a basis for comparing the no-build and the three alternative alignment corridors, as summarized in the comparative matrix of Section 10.2.

8.1 CONGESTION RELIEF

The construction of the Illiana Expressway would have significant impacts on the roadways intersecting the new facility, for alternate east-west routes such as I-80 and US 30, and for local roadways burdened with heavy truck volumes due to congested Interstate, U.S., and State highways.

The impacts of the three Iliana Alignment Corridor alternatives on VMT within the impact area are shown in Table 8.1 (see Figure 2.5 for map of impact area). Overall VMT is anticipated to rise about one percent over the No-Build levels for each of the three alternatives. This is likely due to minor shifts in traffic patterns as vehicles travel slightly longer distances to access the Illiana Expressway and save time on the fast, uncongested, limited access facility. For all three major vehicle classes, a shift from arterial and local roads onto expressways is estimated. In the case of heavy trucks, VMT on arterial and local roads is reduced by between 16 percent (for AC1) to nine percent (for AC3).

The potential impacts of an Illiana Expressway are also seen in the changes in time spent on roadways, or VHT. The impacts of the three Iliana Alignment Corridor alternatives on VHT are shown in Table 8.2. For all three alternatives, there is an anticipated overall reduction in VHT of between two and three percent. This shows that travelers are saving time by accessing the Illiana Expressway or experiencing reduced congestion on alternate routes. As some traffic has shifted from local and arterial roadways onto expressways, there are increases in VHT for autos and non-heavy trucks on expressways. Heavy trucks see reduced travel time for all three alignment corridor alternatives.

Table 8.1 Illiana Impacts on Daily VMT (Illiana Impact Area)

Vehicle Type	2030 No Build	Percentage Change from No Build		
		AC1	AC2	AC3
Autos				
Freeway/Expressway	5,091,000	3.9%	5.6%	7.6%
Arterials/Local	17,667,000	-0.5%	-0.9%	-1.3%
Total	**22,758,000**	**0.5%**	**0.6%**	**0.7%**
Non-Heavy Trucks				
Freeway/Expressway	1,728,000	13.9%	17.3%	19.4%
Arterials/Local	2,459,000	-6.0%	-7.9%	-8.4%
Total	**4,187,000**	**2.2%**	**2.5%**	**3.1%**
Heavy Trucks				
Freeway/Expressway	2,499,000	7.1%	5.0%	3.1%
Arterials/Local	417,000	-15.9%	-11.1%	-9.0%
Total	**2,916,000**	3.8%	2.7%	1.4%
All Vehicles	**29,861,000**	**1.0%**	**1.0%**	**1.1%**

Table 8.2 Illiana Impacts on Daily VHT (Illiana Impact Area)

Vehicle Type	2030 No Build	Percentage Change from No Build		
		AC1	AC2	AC3
Autos				
Freeway/Expressway	192,917	1.1%	2.1%	3.4%
Arterials/Local	941,567	-2.2%	-2.7%	-3.3%
Total	**1,134,483**	**-1.6%**	**-1.8%**	**-2.2%**
Non-Heavy Trucks				
Freeway/Expressway	62,383	5.5%	7.3%	8.4%
Arterials/Local	122,683	-7.2%	-9.1%	-10.1%
Total	**185,067**	**-2.9%**	**-3.5%**	**-3.9%**
Heavy Trucks				
Freeway/Expressway	97,433	-2.1%	-2.9%	-4.2%
Arterials/Local	19,133	-18.4%	-14.5%	-13.0%
Total	**116,567**	**-4.8%**	**-4.8%**	**-5.6%**
All Vehicles	**1,436,117**	-2.1%	-2.3%	-2.7%

Travel Time Savings Along Key Routes

The construction of the Illiana Expressway has the potential to save time for travelers currently using more congested or circuitous routes to commute, shop, or make other trips. Figure 8.1 shows several major study area traffic flows with the potential for diverting to one of the three Illiana Expressway alignment corridors. The associated time savings for each trip (with Illiana vs. a No-Build scenario) are shown in Table 8.3. All values are based on Illiana model output.

Figure 8.1 Major Study Area Traffic Flows With Potential Diversion to Illiana

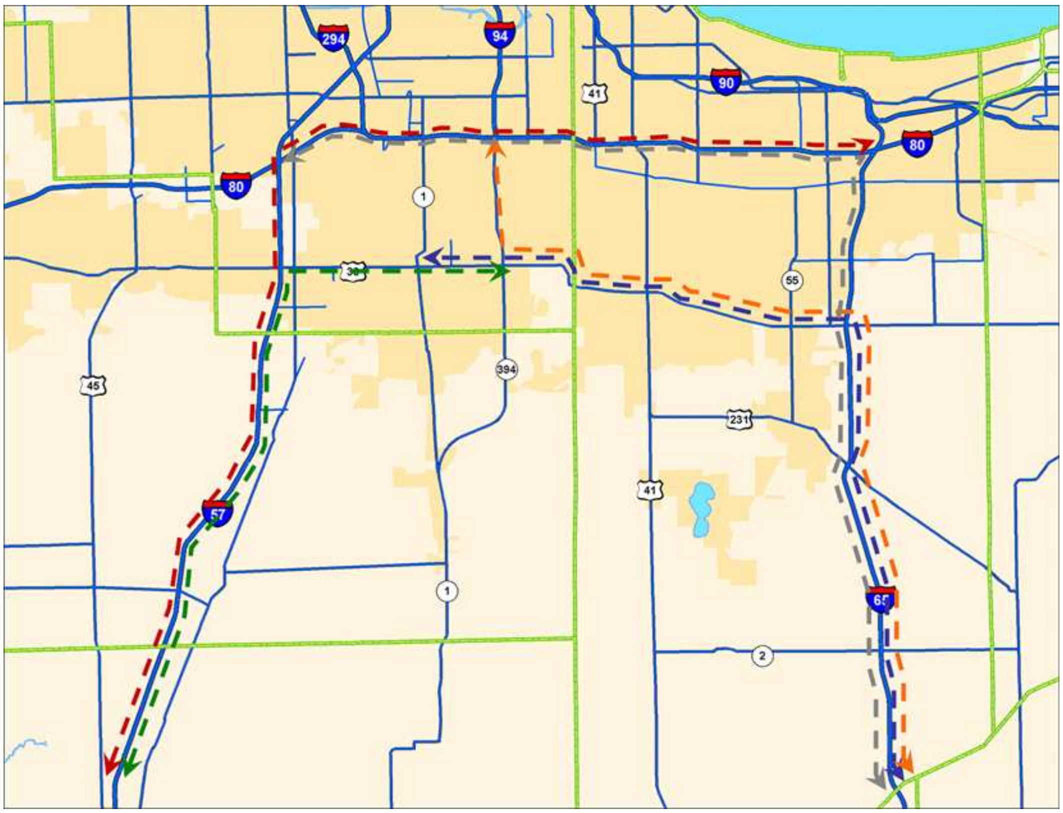


Table 8.3 Travel Time Savings with Diversion to Illiana

			Time Savings with Diversion to Illiana		
Origin	**Destination**	**Color**	**AC1**	**AC2**	**AC3**
I-57 at SR-9 (Manteno)	I-80 at I-65	Red	15.0%	18.9%	12.9%
I-57 at SR-9 (Manteno)	US 30 at IL 394	Green	16.5%	27.8%	33.3%
I-65 at Lake CL	I-80 at I-57	Grey	32.5%	33.5%	35.6%
I-65 at Lake CL	US 30 at IL 1	Purple	34.6%	37.6%	41.8%
I-65 at Lake CL	I-80 at IL 394	Orange	33.6%	36.1%	40.0%

Trips originating in the southeastern portion of the study area show significant savings between endpoints in the northwestern portion, reducing travel times between 30 and 40 percent. Trips from the southwestern portion of the study area to the northeastern portion show reductions in travel times ranging from about 13 percent up to 33 percent. Of the three alignment corridors, AC3 generally provides the most significant time savings, followed by AC2.

8.2 Traffic Operations

Regional Traffic Operation Impacts

Operational analyses of LOS performance for the proposed Illiana Expressway as well as I-80/94 (Borman Expressway) and US 30 were performed for the 2030 No-Build and 2030 AC1, AC2 and AC3 alternatives. Analyses for the Borman and Illiana Expressway were conducted in *HCS+* using the methodologies described in the *Highway Capacity Manual* for basic freeway segments. Operational analyses for US 30 were based on a planning level estimate of LOS based on the average daily traffic and number of lanes.

Peak Hour Factors

Average daily traffic (ADT) volumes for the Borman Expressway, US 30 and the proposed Illiana Expressway were provided for the 2030 No-Build and 2030 AC1, AC2 and AC3 alternatives. To conduct capacity analyses using *HCS+*, it is necessary to have AM and PM peak design hour volumes. The design hour volumes represent the 30^{th} highest hourly volume of the year. To derive AM and PM peak design hour volumes from ADT information, K and D-factors were developed for each peak. The K-factor represents the percent of the two-way ADT that occurs in the peak design hour. The D-factor represents the percent of the peak design hour traffic that is traveling in the peak direction. The K and D factors were developed by comparing existing peak hour counts with the existing daily volumes. The existing counts, provided by INDOT, were taken on the Borman, 0.50 mile east of Burr Street. The counts were taken on Tuesday, August 1, 2006 and are assumed to represent an average day. From this traffic count, the average day AM and PM peak hours represent 5.39% and 6.43% of the ADT, respectively. From ATR data in Kentucky and Ohio, K-factors for 30^{th} highest peak hours are 25-30% higher than the calculated percent for an average day. Therefore, the calculated 5.39% and 6.43% will be increased by 27.5% to determine the K-factors to be used for the design hour volumes. D-factors for the AM and PM peak hours were calculated from the existing traffic count. It is assumed that the D-factors for the 2030 design year will be the same as the existing. Table 8.4 shows the calculated K and D-factors to be used to develop 2030 peak hour volumes from the ADT information for the Borman Expressway and proposed Illiana Expressway.

Table 8.4 2030 AM and PM Design Hour K and D-Factors

	K-Factor	D-Factor
A.M. Peak Design Hour	6.9%	52% (WB)
P.M. Peak Design Hour	8.2%	59% (EB)

Truck Percentages

For the Borman Expressway, the existing traffic counts were used to develop truck percentages for the eastbound and westbound directions during both the AM and PM peak hours. It is assumed that these existing truck percentages will remain constant in the 2030 design year. The truck percentages on the Borman are 37% EB and 31% WB during the AM peak hour and 39% EB and 27% WB during the PM peak hour.

For the proposed Illiana Expressway, separate passenger car and truck volumes were provided. While various alternative lane configurations were evaluated for the Illiana Expressway, for purposes of the operations analysis, the four mixed-use + four truck only lane alternative was analyzed. For operational analysis, it was assumed that 10% of the total truck volume will be using the mixed use lanes and the remaining 90% of the truck volumes will be using the truck only lanes.

Peak Hour Volumes

Peak hour volumes for each segment of the Borman and Illiana Expressways were calculated by multiplying the 2-way ADT volumes by the K and D-factors. Volume calculations for the 2030 No-Build as well as Build alternatives AC1, AC2 and AC3 are shown in Table 8.5.

It should be pointed out that HCM does not provide for the analysis of a facility with more than 25% truck volumes. This creates a problem for both the Borman Expressway and the truck only lanes of the Illiana Expressway. To get around this, the truck volumes calculated for each segment were manually converted to passenger car equivalents (PCE) and added to the passenger car volume used to get an adjusted volume used for the operational analysis. PCE represent the number of passenger cars that are displaced by a single truck. PCE are important because passenger cars/mile/lane is the criteria used to determine LOS for basic freeway segments. The PCE calculations and final adjusted volumes are shown in Table 8.5.

Basic Freeway Segment Analysis

Capacity results for the Borman Expressway and Illiana Expressway are shown in Table 8.6.

Table 8.5 2030 A.M. and P.M. Peak Hour Design Volumes

2030 Borman Expressway Volumes – No-Build Alternative											
	Location	Direction	ADT	K-Factor	Hourly Volume	D-Factor	Directional Volume	Truck %	Truck Volume	PCE Trucks	Adjusted Volulme
A.M.	I-294 to IL 394	EB	167269	6.90%	11542	48%	5540	37%	2050	3075	6565
		WB	167269	6.90%	11542	52%	6002	31%	1860	2791	6932
	IL 394 to US 41	EB	198310	6.90%	13683	48%	6568	37%	2430	3645	7783
		WB	198310	6.90%	13683	52%	7115	31%	2206	3309	8218
	US 41 to I-65	EB	165655	6.90%	11430	48%	5486	37%	2030	3045	6501
		WB	165655	6.90%	11430	52%	5944	31%	1843	2764	6865
P.M.	I-294 to IL 294	EB	167269	8.20%	13716	59%	8092	39%	3156	4734	9671
		WB	167269	8.20%	13716	41%	5624	27%	1518	2278	6383
	IL 394 to US 41	EB	198310	8.20%	16261	59%	9594	39%	3742	5613	11465
		WB	198310	8.20%	16262	41%	6667	27%	1800	2700	7567
	US 41 to I-65	EB	165655	8.20%	13584	59%	8014	39%	3126	4688	9677
		WB	165655	8.20%	13584	41%	5569	27%	1504	2256	6321

2030 Borman Expressway Volumes – AC1 Alternative											
	Location	Direction	ADT	K-Factor	Hourly Volume	D-Factor	Directional Volume	Truck %	Truck Volume	PCE Trucks	Adjusted Volulme
A.M.	I-294 to IL 394	EB	162044	6.90%	11181	48%	5367	37%	1986	2979	6360
		WB	162044	6.90%	11181	52%	5814	31%	1802	2704	6715
	IL 394 to US 41	EB	194718	6.90%	13436	48%	6449	37%	2386	3579	7642
		WB	194718	6.90%	13436	52%	6986	31%	2166	3249	8069
	US 41 to I-65	EB	163053	6.90%	11252	48%	5400	37%	1998	2997	6399
		WB	163053	6.90%	11251	52%	5850	31%	1814	2720	6757
P.M.	I-294 to IL 294	EB	162044	8.20%	13288	59%	7840	39%	3057	4586	9368
		WB	162044	8.20%	13288	41%	5448	27%	1471	2206	6183
	IL 394 to US 41	EB	194718	8.20%	15967	59%	9420	39%	3674	5511	11257
		WB	194718	8.20%	15967	41%	6546	27%	1768	2651	7430
	US 41 to I-65	EB	163053	8.20%	13370	59%	7889	39%	3077	4615	9427
		WB	163053	8.20%	13370	41%	5482	27%	1480	2220	6222

2030 Borman Expressway Volumes – AC2 Alternative											
	Location	Direction	ADT	K-Factor	Hourly Volume	D-Factor	Directional Volume	Truck %	Truck Volume	PCE Trucks	Adjusted Volulme
A.M.	I-294 to IL 394	EB	162175	6.90%	11190	48%	5371	37%	1987	2981	6365
		WB	162175	6.90%	11190	52%	5819	31%	1804	2706	6721
	IL 394 to US 41	EB	194253	6.90%	13403	48%	6434	37%	2380	3571	7624
		WB	194253	6.90%	13403	52%	6970	31%	2161	3241	8050
	US 41 to I-65	EB	162616	6.90%	11221	48%	5386	37%	1993	2989	6382
		WB	162616	6.90%	11221	52%	5835	31%	1809	2713	6739
P.M.	I-294 to IL 294	EB	162175	8.20%	13298	59%	7846	39%	3060	4590	9376
		WB	162175	8.20%	13298	41%	5452	27%	1472	2208	6188
	IL 394 to US 41	EB	194253	8.20%	15929	59%	9398	39%	3665	5498	11231
		WB	194253	8.20%	15929	41%	6531	27%	1763	2645	7412
	US 41 to I-65	EB	162616	8.20%	13335	59%	7867	39%	3068	4602	9401
		WB	162616	8.20%	13335	41%	5467	27%	1476	2214	6205

2030 Borman Expressway Volumes - AC3 Alternative											
	Location	Direction	ADT	K-Factor	Hourly Volume	D-Factor	Directional Volume	Truck %	Truck Volume	PCE Trucks	Adjusted Volulme
A.M.	I-294 to IL 394	EB	159644	6.90%	11015	48%	5287	37%	1956	2935	6266
		WB	159644	6.90%	11015	52%	5728	31%	1776	2664	6616
	IL 394 to US 41	EB	193853	6.90%	13376	48%	6420	37%	2376	3563	7608
		WB	193853	6.90%	13376	52%	6955	31%	2156	3234	8034
	US 41 to I-65	EB	162003	6.90%	11178	48%	5366	37%	1985	2978	6358
		WB	162003	6.90%	11178	52%	5813	31%	1802	2703	6714
P.M.	I-294 to IL 294	EB	159644	8.20%	13091	59%	7724	39%	3012	4518	9230
		WB	159644	8.20%	13091	41%	5367	27%	1449	2174	6092
	IL 394 to US 41	EB	193853	8.20%	15896	59%	9379	39%	3658	5486	11207
		WB	193853	8.20%	15896	41%	6517	27%	1760	2640	7397
	US 41 to I-65	EB	162003	8.20%	13284	59%	7838	39%	3057	4585	9366
		WB	162003	8.20%	13284	41%	5447	27%	1471	2206	6182

2030 Illiana Expressway Volumes – AC1 Alternative (Mixed Use Lanes)										
	Location	**Direction**	**ADT Cars**	**ADT Trucks**	**ADT Cars + 10% Trucks**	**K-Factor**	**Hourly Volume**	**D-Factor**	**Directional Volume**	**Mixed Use Truck Percentage**
A.M.	I-57 to IL 1/IL 394	EB	12510	7358	13246	6.9%	914	48%	439	6%
		WB	12510	7358	13246	6.9%	914	52%	475	6%
	IL 1/IL 394 to US 41	EB	12007	8430	12850	6.9%	887	48%	426	7%
		WB	12007	8430	12850	6.9%	887	52%	461	7%
	US 41 to I-65	EB	13296	8200	14116	6.9%	974	48%	468	6%
		WB	13296	8200	14116	6.9%	974	52%	506	6%
P.M.	I-57 to IL 1/IL 394	EB	12510	7358	13246	8.2%	1086	59%	641	6%
		WB	12510	7358	13246	8.2%	1086	41%	445	6%
	IL 1/IL 394 to US 41	EB	12007	8430	12850	8.2%	1054	59%	622	7%
		WB	12007	8430	12850	8.2%	1054	41%	432	7%
	US 41 to I-65	EB	13296	8200	14116	8.2%	1158	59%	683	6%
		WB	13296	8200	14116	8.2%	1158	41%	475	6%

2030 Illiana Expressway Volumes – AC1 Alternative (Truck Only Lanes)									
	Location	**Direction**	**ADT Trucks**	**90% in Truck Lanes**	**K-Factor**	**Hourly Volume**	**D-Factor**	**Directional Volume**	**PCE Volulme**
A.M.	I-57 to IL 1/IL 394	EB	7358	6622	6.9%	457	48%	219	329
		WB	7358	6622	6.9%	457	52%	238	356
	IL 1/IL 394 to US 41	EB	8430	7587	6.9%	524	48%	251	377
		WB	8430	7587	6.9%	524	52%	272	408
	US 41 to I-65	EB	8200	7380	6.9%	509	48%	244	367
		WB	8200	7380	6.9%	509	52%	265	397
P.M.	I-57 to IL 1/IL 394	EB	7358	6622	8.2%	543	59%	320	481
		WB	7358	6622	8.2%	543	41%	223	334
	IL 1/IL 394 to US 41	EB	8430	7587	8.2%	622	59%	367	551
		WB	8430	7587	8.2%	622	41%	255	383
	US 41 to I-65	EB	8200	7380	8.2%	605	59%	357	536
		WB	8200	7380	8.2%	605	41%	248	372

2030 Illiana Expressway Volumes – AC2 Alternative (Mixed Use Lanes)										
	Location	**Direction**	**ADT Cars**	**ADT Trucks**	**ADT Cars + 10% Trucks**	**K-Factor**	**Hourly Volume**	**D-Factor**	**Directional Volume**	**Mixed Use Truck Percentage**
A.M.	I-57 to IL 1/IL 394	EB	16628	9792	17607	6.9%	1215	48%	583	6%
		WB	16628	9792	17607	6.9%	1215	52%	632	6%
	IL 1/IL 394 to US 41	EB	13855	9738	14829	6.9%	1023	48%	491	7%
		WB	13855	9738	14829	6.9%	1023	52%	532	7%
	US 41 to I-65	EB	18485	11402	19625	6.9%	1354	48%	650	6%
		WB	18485	11402	19625	6.9%	1354	52%	704	6%
P.M.	I-57 to IL 1/IL 394	EB	16628	9792	17607	8.2%	1444	59%	852	6%
		WB	16628	9792	17607	8.2%	1444	41%	592	6%
	IL 1/IL 394 to US 41	EB	13855	9738	14829	8.2%	1216	59%	717	7%
		WB	13855	9738	14829	8.2%	1216	41%	499	7%
	US 41 to I-65	EB	18485	11402	19625	8.2%	1609	59%	949	6%
		WB	18485	11402	19625	8.2%	1609	41%	660	6%

2030 Illiana Expressway Volumes – AC2 Alternative (Truck Only Lanes)									
	Location	**Direction**	**ADT Trucks**	**90% in Truck Lanes**	**K-Factor**	**Hourly Volume**	**D-Factor**	**Directional Volume**	**PCE Volulme**
A.M.	I-57 to IL 1/IL 394	EB	9792	8813	6.9%	608	48%	292	438
		WB	9792	8813	6.9%	608	52%	316	474
	IL 1/IL 394 to US 41	EB	9738	8764	6.9%	605	48%	290	435
		WB	9738	8764	6.9%	605	52%	314	472
	US 41 to I-65	EB	11402	10262	6.9%	708	48%	340	510
		WB	11402	10262	6.9%	708	52%	368	552
P.M.	I-57 to IL 1/IL 394	EB	9792	8813	8.2%	723	59%	426	640
		WB	9792	8813	8.2%	723	41%	296	444
	IL 1/IL 394 to US 41	EB	9738	8764	8.2%	719	59%	424	636
		WB	9738	8764	8.2%	719	41%	295	442
	US 41 to I-65	EB	11402	10262	8.2%	841	59%	496	745
		WB	11402	10262	8.2%	841	41%	345	518

2030 Illiana Expressway Volumes – AC3 (Mixed Use Lanes)

	Location	Direction	ADT Cars	ADT Trucks	ADT Cars + 10% Trucks	K-Factor	Hourly Volume	D-Factor	Directional Volume	Mixed Use Truck Percentage
A.M.	I-57 to IL 1/IL 394	EB	22331	13351	23666	6.9%	1633	48%	784	6%
		WB	22331	13351	23666	6.9%	1633	52%	849	6%
	IL 1/IL 394 to US 41	EB	18474	13001	19774	6.9%	1364	48%	655	7%
		WB	18474	13001	19774	6.9%	1364	52%	709	7%
	US 41 to I-65	EB	19594	12086	20803	6.9%	1435	48%	689	6%
		WB	19594	12086	20803	6.9%	1435	52%	746	6%
P.M.	I-57 to IL 1/IL 394	EB	22331	13351	23666	8.2%	1941	59%	1145	6%
		WB	22331	13351	23666	8.2%	1941	41%	796	6%
	IL 1/IL 394 to US 41	EB	18474	13001	19774	8.2%	1621	59%	957	7%
		WB	18474	13001	19774	8.2%	1621	41%	665	7%
	US 41 to I-65	EB	19594	12086	20803	8.2%	1706	59%	1006	6%
		WB	19594	12086	20803	8.2%	1706	41%	699	6%

2030 Illiana Expressway Volumes – AC3 Alternative (Truck Only Lanes)

	Location	Direction	ADT Trucks	90% in Truck Lanes	K-Factor	Hourly Volume	D-Factor	Directional Volume	PCE Volulme
A.M.	I-57 to IL 1/IL 394	EB	13351	12016	6.9%	829	48%	398	597
		WB	13351	12016	6.9%	829	52%	431	647
	IL 1/IL 394 to US 41	EB	13001	11701	6.9%	807	48%	388	581
		WB	13001	11701	6.9%	807	52%	420	630
	US 41 to I-65	EB	12086	10877	6.9%	751	48%	360	540
		WB	12086	10877	6.9%	751	52%	390	585
P.M.	I-57 to IL 1/IL 394	EB	13351	12016	8.2%	985	59%	581	872
		WB	13351	12016	8.2%	985	41%	404	606
	IL 1/IL 394 to US 41	EB	13001	11701	8.2%	959	59%	566	849
		WB	13001	11701	8.2%	959	41%	393	590
	US 41 to I-65	EB	12086	10877	8.2%	892	59%	526	789
		WB	12086	10877	8.2%	892	41%	366	549

Table 8.6 Basic Freeway Segment Capacity Results

	Location	Direction	No-Build LOS	No-Build Density (veh/hr)[a]	AC1 LOS	AC1 Density (veh/hr)[a]	AC2 LOS	AC2 Density (veh/hr)[a]	AC3 LOS	AC3 Density (veh/hr)[a]
Borman 2030 AM Peak	I-294 to IL 394	EB	D	30.7	D	29.6	D	29.6	D	29.1
		WB	D	32.7	D	31.5	D	31.5	D	30.9
	IL 394 to US 41	EB	E	39.3	E	38.0	E	37.8	D	37.7
		WB	E	44.2	E	42.4	E	42.1	E	41.9
	US 41 to I-65	EB	D	30.3	D	29.8	D	29.6	D	29.6
		WB	D	32.4	D	31.7	D	31.6	D	31.4
Borman 2030 PM Peak	I-294 to IL 394	EB	F	(2686)	F	(2603)	F	(2606)	F	(2564)
		WB	D	29.6	D	28.7	D	28.7	D	28.2
	IL 394 to US 41	EB	F	(3186)	F	(3128)	F	(3119)	F	(3114)
		WB	E	37.4	E	36.2	E	36.1	E	36.0
	US 41 to I-65	EB	F	(2661)	F	(2619)	F	(2611)	F	(2603)
		WB	D	29.4	D	28.9	D	28.8	D	28.7
Illiana 2030 AM Peak Mixed Use	I-57 to IL 1/IL 394	EB			A	3.6	A	4.7	A	6.4
		WB			A	3.9	A	5.2	A	6.9
	IL 1/IL 394 to US 41	EB			A	3.5	A	4.0	A	5.4
		WB			A	3.8	A	4.4	A	5.8
	US 41 to I-65	EB			A	3.6	A	5.0	A	5.3
		WB			A	3.9	A	5.3	A	5.7
Illiana 2030 PM Peak Mixed Use	I-57 to IL 1/IL 394	EB			A	5.2	A	6.9	A	9.4
		WB			A	3.7	A	4.8	A	6.5
	IL 1/IL 394 to US 41	EB			A	5.1	A	5.9	A	7.9
		WB			A	3.5	A	4.1	A	5.5
	US 41 to I-65	EB			A	5.2	A	7.3	A	7.7
		WB			A	3.7	A	5.0	A	5.3
Illiana 2030 AM Peak Truck Lanes	I-57 to IL 1/IL 394	EB			A	2.6	A	3.5	A	4.8
		WB			A	2.9	A	3.7	A	5.2
	IL 1/IL 394 to US 41	EB			A	3.0	A	3.5	A	4.6
		WB			A	3.3	A	3.7	A	5.0
	US 41 to I-65	EB			A	2.7	A	3.8	A	4.0
		WB			A	3.1	A	4.1	A	4.4
Illiana 2030 PM Peak Truck Lanes	I-57 to IL 1/IL 394	EB			A	3.8	A	5.1	A	6.9
		WB			A	2.6	A	3.5	A	4.8
	IL 1/IL 394 to US 41	EB			A	4.4	A	5.1	A	6.7
		WB			A	3.0	A	3.5	A	4.7
	US 41 to I-65	EB			A	4.0	A	5.6	A	5.9
		WB			A	2.7	A	3.9	A	4.1

[a] Density is reported in passenger cars per mile per lane. Density values cannot be calculated for LOS F conditions. For this case, maximum service flow rates (veh/hr) are listed to provide a comparison between alternatives.

As can be seen in Table 8.6, the Borman Expressway operates at LOS D and E during both the AM and PM peak for most locations with a few locations at LOS F. There is a slight improvement in operation in the Build conditions compared to the No-Build. The Illiana Expressway operates at LOS A for every location. There is a significant amount of excess capacity on the Illiana Expressway.

US 30 Capacity Analyses

Capacity analysis cannot be conducted on US 30 using the methodology of the *Highway Capacity Manual* (HCM) for the design year. The HCM classifies this as an Urban Street. Analysis for this requires either existing travel times and delays, which would not be applicable to a future year, or a good idea of traffic signal operation. Several assumptions would be required to develop this information for the 2030 design year. Instead, the *Quality/Level of Service Handbook*, published by the Florida Department of Transportation was used to estimate LOS results. The *Quality/Level of Service Handbook* uses the principles of the HCM to develop ADT ranges for various conditions including, facility type, signal spacing, number of lanes, divided/undivided and left turn lanes. These conditions were examined for the sections on US 30 to be analyzed and are documented below.

<u>I-65 to US 41</u>
> 2.0 signals per mile
6 lanes
Divided
Left turns provided

<u>US 41 to IL 394</u>
> 2.0 signals per mile
4 lanes
Divided
Left turns provided

<u>IL 394 to I-57</u>
>2.0 signals per mile
6 lanes
Divided
Left turns provided

Table 8.7 shows the ADT criteria from the *Quality/Level of Service Handbook* for the above section conditions.

Table 8.7 Level of Service Criteria

Lanes		Level of Service A	B	C	D	E
2	Undivided	**	1900	11200	15400	16300
4	Divided	**	4100	26000	32700	34500
6	Divided	**	6500	40300	49200	51800
8	Divided	**	8500	53300	63800	67000

** Cannot be achieved using table input value.

Table 8.8 shows the LOS for US 30 in the 2030 design year.

Table 8.8 Capacity Results for US 30

	No-Build		AC1		AC2		AC3	
Location	ADT	LOS	ADT	LOS	ADT	LOS	ADT	LOS
I-65 to US 41	75,758	F	75,521	F	75,424	F	74,921	F
US 41 to IL 394	30,021	D	28,053	D	28,116	D	27,768	D
IL 394 to I-57	52,149	F	49,458	E	49,733	E	48,760	D

Intelligent Transportation Systems Strategies

Several intelligent transportation systems (ITS) strategies were considered as a means of alleviating congestion and enhancing the flow of traffic on the Illiana Expressway and alternate routes. ITS strategies considered include:

- **Variable Message Signs (VMS)** – VMS are electronic changeable message boards that are used to give travelers important information while they are en route. This can include information about a downstream incident, including alternate routes, current construction activities, current travel times and other important information such as event parking and Amber Alerts.
- **Vehicle Surveillance and Detection** – Vehicle surveillance and detection systems use in pavement sensors and/or video cameras to detect incidents occurring on a facility. This allows for a rapid response to the incident, resulting in reduced congestion.
- **Ramp Metering** – Ramp metering is a strategy that uses traffic signals on freeway on-ramps to control the rate of vehicles entering the freeway. The goal of ramp metering is to reduce congestion on the mainline by limiting the entering volume, thus keeping the mainline volume at or below capacity.

- **Virtual Weigh Stations** – Virtual weigh stations is a strategy that replaces static weigh stations with sensors designed to capture and record truck axle weights and gross vehicle weights as they drive over them (weigh-in-motion). This removes the requirement to have all trucks make a stop, making the weigh station more efficient.
- **Highway Advisory Radio (HAR)** – HAR consists of low-power AM radio stations set up to provide information to motorists and other travelers regarding traffic delays.
- **Incident Management** – An incident management plan combines several ITS components to quickly and effectively respond to an incident on a roadway. Common items include vehicle surveillance to detect the incident, which leads to emergency vehicle response, messages on HAR and variable message signs to guide traffic around the incident and finally, dispatching tow trucks or other equipment to clean up the incident. The goal of incident management is to respond and remove the incident as quickly as possible, thus minimizing delay and congestion for the motorist.
- **Roadway Weather Information Systems (RWIS)** – RWIS use meteorological stations placed alongside the highway to monitor air and pavement temperatures to determine how winter conditions are impacting the roadway. This allows maintenance departments to make optimal use of de-icing materials and staff.

ITS Benefits

A recent planning-level analysis of the benefits of deployed and proposed ITS elements in the State of Indiana found positive benefit to cost ratios for the Northwest region of the State, which includes the Borman Expressway.

As part of the study,[14] the ITS Deployment Analysis System (IDAS), developed by Cambridge Systematics for the Federal Highway Administration (FHWA), was used to generate estimates on how INDOT's ITS programs are improving system performance on the Borman. These benefits come in the form of travel time savings, reduction in crash severity and frequency, fuel savings, and environmental savings through carbon emission reductions. The annualized costs of the ITS infrastructure in the Borman area were estimated, covering the initial capital and replacement costs (spread over the life of a device) and the operations and maintenance obligations to keep a device functional. Estimated benefits significantly outweighed the costs, leading to a positive benefit to cost ratio. This positive ratio reflects the large amounts of ITS-related savings that occur in this heavily trafficked corridor.

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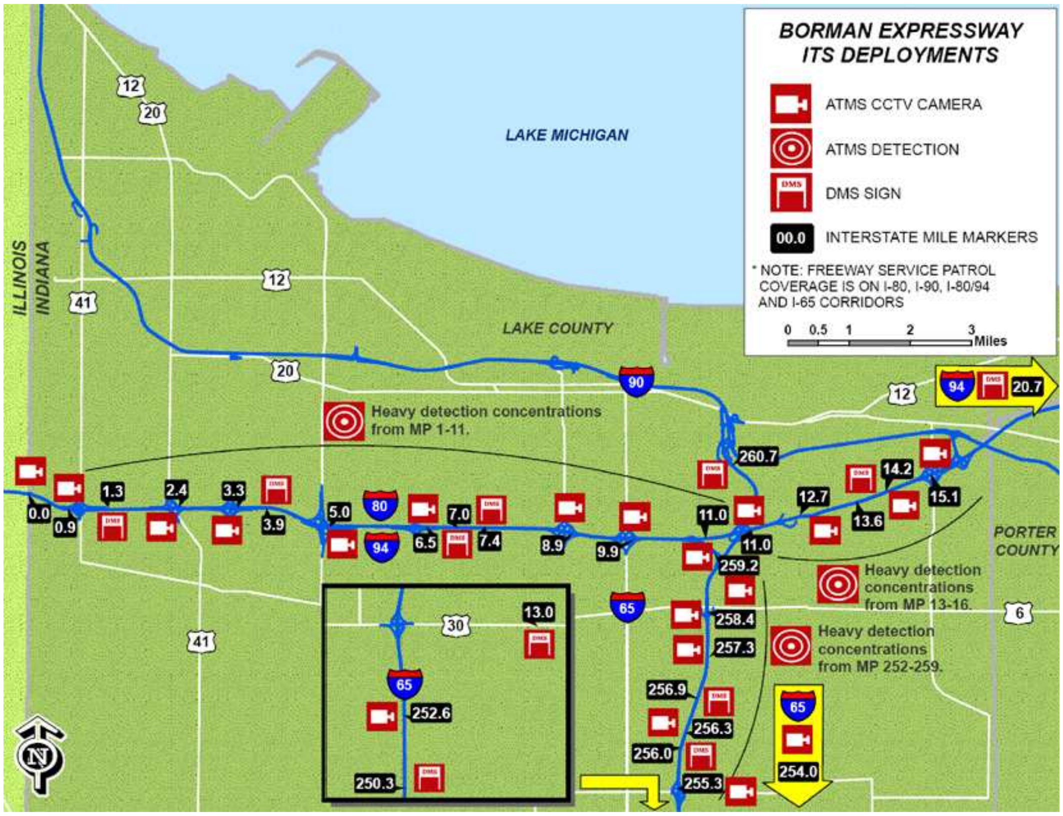
[14] Indiana Department of Transportation, *Intelligent Transportation System Benefit/Cost Evaluation*, Draft Version, May 2009.

The locations of ITS devices on the Borman Expressway are shown in Figure 8.2. Real time images from most deployed cameras and detectors can be seen online at http://pws.indot.org/ipws/nw/.

Figure 8.2 Borman Expressway ITS Infrastructure Locations



The parameters used to estimate benefits for the Freeway Management System on the Borman are: 1) percent of the time when relevant information is being displayed on signs (estimate to be about 20 percent in this region); 2) percentage of motorists who divert due to the information provided (estimated to be about 20 percent in this region); and 3) the time saved by each motorist who diverts (estimated to be about 5 minutes).

In the Northwest Indiana region, the Hoosier Helper Service operates 24-hours/7-days with the exception of the 3rd shift on Saturday and Sunday nights, assisting motorists and minimizing the delay associated with disruptive incidents. Currently, this service operates on the I-80, I-90, I-80/94, and I-65 corridors.

The proposed Illiana Expressway presents an opportunity for investment in ITS during construction of the facility. There may be an opportunity for a similar, smaller scale bi-state freeway service patrol to operate on the Illiana Expressway; alternatively, the Illiana could be incorporated into the Hoosier Helper Service for a minimal marginal cost. If the AC3 alternative is selected, with higher traffic volumes and closer proximity to viable diversion routes, the service patrol could be supplemented by a moderate deployment of detection equipment, CCTV surveillance, and a few key DMS locations. These systems become more critical under the four-lane geometric scenario, when a nonrecurring event or incident has more potential to disrupt or stop traffic on the facility.

An opportunity exists for bi-state coordination between INDOT and IDOT in terms of the deployment of HAR on the Illiana Expressway, providing useful information to drivers on both sides of the State line. In Northwest Indiana, HAR was estimated to provide useful information that could result in diversion about one percent of the time, saving the diverting drivers about four minutes. The deployment of HAR to the Illiana, could generate significant benefit at a relatively low cost.

8.3 Regional and National Economic Impacts

The Purpose and Need section of this report highlights potential benefits and opportunities for a new expressway in the Illiana Study Area in terms of regional and national economic growth. Transportation system investments can:

- Decrease travel time;
- Decrease travel cost;
- Enhance Safety;
- Increase reliability; and
- Enhance accessibility.

These benefits in turn increase productivity, as well as labor and market access. In addition, overall agglomeration benefits may be created by the location decisions of related businesses (i.e., manufacturers and their suppliers), and these shortened supply chains have direct positive consequences for the local region.

The location of the proposed Illiana Expressway (within large MSAs, providing critical east-west connections) has the potential to produce substantial travel efficiency and economic benefits to both the regional and national economies. Based on results from the Illiana model, direct travel benefits to regional and national travel have been estimated, as well as broader economic development benefits from reduced transportation costs. Based on estimated changes in VHT and VMT, direct travel effects include travel time, travel operating costs (fuel and nonfuel), crashes, and emissions. The model provides data to estimate these effects for autos, nonfreight trucks, and freight (heavy) trucks for trips within, through, into, and out of the region. User benefits are estimated from standard approaches provided by FHWA-sponsored models such as the Surface Transportation Efficiency Analysis Model (STEAM) and the Highway Economic Requirements System (HERS). Fuel and non-fuel operating costs are based on per mile of travel cost estimates from AAA for autos, and scaled up for trucks based on STEAM operating cost parameters.

By far the largest share of benefits would be due to reduced travel times provided by the Illiana Expressway, with an estimated $220 million in total time savings across the U.S. (based on AC3) annually. About 28 percent of this is attributable to freight trucks.[15] Nearly 60 percent of these benefits are expected to accrue outside of the Chicago and Northwest Indiana area, reflecting the large amount of long-distance freight trips passing through the region. Long-distance freight trucks will also experience additional benefits to the national highway system in terms of reduced emissions, crashes, and pavement damage.

Regional economic impacts can also be substantial, as the Illiana Expressway leverages the large concentration of transportation-dependent industries within the region to reduce travel and logistics costs, improve connectivity to suppliers, and increase accessibility to markets and multimodal facilities. Applying a standard economic impact analysis approach, the business portion of travel benefits can be converted into industry cost savings to use as input to the Regional Economic Models, Inc. (REMI) model to estimate broader economic effects in terms of jobs, income, and business output.[16]

Tables 8.9 and 8.10 provide summaries of the estimated regional economic effects from the Illiana Expressway (assuming that the Expressway opens in 2018). The REMI model was used to evaluate impacts to the Gary-Michigan City MSA in Indiana, including Lake, Porter, Jasper, Newton, and LaPorte counties, and the Chicago MSA in Illinois, including Cook, DeKalb, DuPage, Grundy, Kane, Kendall, McHenry, and Will counties. Low and high ranges of economic impacts are provided– the low includes just the value of the direct travel benefits rippling through the regional economy, while the higher values include additional logistics and supply chain effects estimated using parameters recommended by the U.S. DOT Freight Economic Impact Guidebook.[17]

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[15] These travel time benefits do not include reliability effects (i.e., reduced variability in travel speeds) which can produce significant benefits, especially in larger urban markets.

[16] This approach is similar to the Indiana DOT’s Major Corridor Investment Benefits Analysis System (MCIBAS) that employs travel model, user benefit, and economic impact models. A similar methodology was also applied in the development of the INDOT Multimodal Freight and Mobility Plan.

[17] http://www.dot.gov/freight/guide061018/index.htm.

Table 8.9 Discounted Regional Economic Impacts over 30 Years
2009 Dollars

	Without Supply Chain Benefits			With Supply Chain Benefits		
	AC1	AC2	AC3	AC1	AC2	AC3
Employment (total at end of period)	166	378	696	265	605	1131
Income (in millions)	87.6	208.0	396.1	141.2	335.9	648.0
GRP (in millions)	131.8	331.5	644.8	212.7	532.7	1054.8

Source: Regional Economic Models, Inc. and Cambridge Systematics, Inc.

Table 8.10 Regional Economic Impacts in 2020, 2030, and 2040
2009 Dollars

	Without Supply Chain Benefits			With Supply Chain Benefits		
	2020	2030	2040	2020	2030	2040
AC1						
Employment	99	146	161	162	235	259
Income (in millions)	5.9	11.5	15.9	9.7	18.1	25.1
GRP (in millions)	8.7	17.4	23.6	14.9	27.4	37.3
AC2						
Employment	221	327	366	360	530	585
Income (in millions)	13.4	26.8	59.8	22.3	43.3	59.8
GRP (in millions)	22.4	42.3	58.5	36.1	68.4	93.3
AC3						
Employment	415	614	674	677	1005	1101
Income (in millions)	26.0	51.5	70.5	42.3	84.3	114.7
GRP (in millions)	43.5	83.4	113.2	70.9	136.9	185.4

Source: Regional Economic Models, Inc. and Cambridge Systematics, Inc.

As shown, job impacts in the region alone range from 166 to 1131 after the Illiana has been in operation for 30 years, depending on alignment corridor. After two years of operation, in 2020, the additional employment is estimated to range from 99 to 677. Alignment Corridor 3 shows the highest levels of employment benefits, followed by Alignment Corridor 2.

Income stemming from the Illiana's impact over 30 years results in present value estimates ranging from $88M to $648M, in 2009 dollars, assuming a six percent discount rate. Alignment Corridor 3 shows the highest income benefits, followed by Alignment Corridor 2.

Gross regional product benefits over 30 years are estimated to range from $132M to $1055M. As with employment and income benefits, Alignment Corridor 3 shows the highest benefits, followed by Alignment Corridor 2.

Regionwide benefits in Table 8.10 show slices of time during the Illiana's operation, showing increases in annual benefits over time. These substantial economic benefits do not include other benefits such as the national-level travel efficiency effects and the vast travel time benefits to passenger travel.

8.4 Freight Mobility

Regional and National Importance of Freight Mobility in the Study Area

The Illiana region, including northeastern Illinois and northwestern Indiana, has a large concentration of transportation-dependent industries. These industries can benefit from reduced travel and logistics costs, improved connectivity to suppliers, and increased accessibility to markets and multimodal facilities.

The Illiana study area contains or is within close proximity to a number of existing or proposed air facilities, rail operations, and regional intermodal centers. However, many of these facilities are not interconnected. Currently, the existing highway network provides a number of north-south movements along I-57, IL 50, IL 1, US 41, SR 55, and I-65, but very few east-west options exist. Today's increasingly global economy places emphasis on efficient connections between modes and between businesses and transportation facilities; limitations in these connections could stunt the potential economic growth in the region.

Benefits to Freight Movement

The AC3 alternative offers a 36 to 42 percent time savings from I-65 at the Kankakee River to points along I-80 west of the state line (see Table 8.3 above). Since I-65 and I-80 (the Borman) in particular carry heavy volumes of truck traffic, this results in time savings for trucks with business within the region or passing through. Ultimately, the Illiana can be expected to provide up to $62 million in annual time savings with a reduction of 5.6 percent in total truck VHT with the AC3 alternative. Due to high levels of existing and forecasted congestion on many regional expressways, many trucks are shifting to arterials and collectors in the region; by moving more trucks to higher functional classification facilities (see Table 8.1 above), the Illiana would have the potential to offer up to $2.6 million in accident cost reductions for freight trucks across the United States.

Truck-Only Lanes

Heavy trucks have a greater impact on capacity than their sheer volume would suggest, especially when mixed with automobiles. And, as a result, for a number of years there has been growing interest in the Truck-Only Lane (TOL) concept, with several notable proposals for systems/projects appearing in planning and traffic engineering literature. To a large extent, this growth in interest has been related to the growth in truck traffic relative to automobile traffic and the contribution of truck traffic to congestion.

Separation of autos and trucks may be a beneficial way of building more system capacity in certain circumstances. A number of studies have shown that system reliability is especially critical in the movement of high-value, time-sensitive commodities, and that the reliability benefits of TOLs (due to the combination of less overall congestion and the incident-reduction potential of truck-auto separation) may provide added value for which truckers/shippers would be willing to pay. It also has been suggested that separation of autos and trucks may have significant safety benefits. Autos are far more maneuverable than heavy trucks, yet auto drivers often do not take this into account when making certain fast response driving maneuvers and this can lead to increased crashes. Further, when trucks and autos are involved in crashes, they are far more likely to be fatal crashes than when crashes involve only autos.

The recently completed National Cooperative Highway Research Program (NCHRP) Project 03-73, Separation of Vehicles – Commercial Motor Vehicle (CMV)-Only Lanes[18] project conducted an in-depth review of a wide range of issues relevant to planning, designing, and evaluating CMV-Only Lanes in an effort to provide useful guidance to planners and policy-makers in the public and private sector debating the usefulness and applicability of the lanes. It presented results of a comparative evaluation of the performance of different CMV-Only Lane concepts and the potential benefits and costs of these concepts. Two main generic scenarios identified for the analysis included: 1) long-haul intercity corridors and 2) urban corridors. These two types of corridor scenarios are broadly representative of the major types of corridors for which truck-only lanes have been proposed in the past. Results of the analysis of each are briefly described below.

Long Haul, Intercity Corridors

There have been a wide variety of studies conducted that focus on applications of truck-only lanes in long-haul, intercity corridors. The primary motivations for developing long-haul, intercity truck-only lanes include:

- Increase freight movement efficiency by increasing throughput and reducing travel times and delays for freight movement;

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[18] The text in the section has been adapted from National Cooperative Highway Research Program (NCHRP) Project 03-73, Separation of Vehicles – Commercial Motor Vehicle (CMV)-Only Lanes

- Provide improved freight efficiency at costs that are lower than the monetized value of the benefits;
- Cost-effectively provide increased freight movement capacity in corridors with limited opportunities to expand rail mode or corridors without existing rail service;
- Provide dedicated facilities on long-haul corridors for Longer Combination Vehicle (LCV) operations, or to meet truck over-size/over-weight (OS/OW) requirements;
- Increase safety by reducing truck/auto interactions; and
- Encourage economic development by drawing industries with high transport costs to the corridor.

NCHRP 03-73 found that these motivations resulted in the following results within key focus areas of Productivity, Mobility, and Safety, as follows.

Productivity: TOLs on long-haul corridors have two potential benefits: the potential to increase truck average speeds (truck mobility, and the benefits of improved speeds on trucking productivity) and the potential to improve productivity through use of LCVs (productivity improvements due to increased payloads). Eliminating auto-truck interactions and addressing geometric issues could provide opportunities to increase speeds on truck-only lanes. Most of the studies reviewed focused on long-haul corridors, show that the alternatives that incorporate LCV operations provide the greatest benefits.

Mobility: The opportunity to reduce travel times along general purpose lanes from implementing TOLs appears to be relatively limited in long-haul corridors. Long-haul intercity truck corridors, while they may pass through or around congested urban areas, are generally not characterized by high levels of congestion. The analysis suggests that the limited opportunity to reduce travel times on long-haul corridors would include cases in which a high volume route passes through many urban centers such that a typical long-haul trip would make it difficult for trucks to avoid traveling through at least one or more of these congested urban areas during peak periods.

Safety: Given the large amount of truck VMT on certain long-haul intercity corridors, the ability to improve safety by separating trucks from autos appears to be an important issue. Also, safety implications of truck-auto interactions would be a key issue along long-haul corridors with truck driver fatigue issues (due to long hours of driving) and significant night time truck traffic. However there is inadequate research on the safety benefits of TOLs along long-haul corridors to conclusively determine if it may be possible to predict lower crash rates due to the implementation of TOLs.

Benefit-Cost: The benefit-cost analysis of the long haul, intercity TOL configuration suggests that high levels of diversion would be needed for truck-only lanes to be judged a preferred alternative both in terms of getting a B-C ratio greater than one and exceeding the B-C ratio of adding more general purpose lanes. Additionally, given the high levels of diversion required to achieve a high B-C performance for TOLs without LCV operations, which might not be achievable along long-haul corridors, particularly those with relatively lower levels of congestion, truck-only lanes without LCV operations would generally appear to be an inappropriate choice compared to adding mixed-flow capacity under the general conditions described for long-haul corridors.

Urban Corridors

There have been several studies conducted that focus on applications of truck-only lanes in urban corridors. The primary motivations for developing urban truck-only lanes include:

- Reduce congestion;
- Mitigate impacts of truck traffic in high truck volume corridors by diverting trucks to certain corridors, improving flows (thus reducing emissions), and getting trucks off arterials;
- Separate trucks from autos thus improving safety and providing reliability benefits (due to reduction in incident-related delay);
- Provide improved travel times and reliability for trucks serving ports and intermodal sites to maintain the economic viability and competitiveness of these facilities;
- Complement innovative freight-oriented land use strategies (e.g., inland ports or freight villages); and
- Facilitate the implementation of truck automation (truck platooning) and/or truck electrification strategies, electronic toll collection (ETC) strategies using Automatic Vehicle Identification (AVI) technologies, and improved weight and safety enforcement of trucks.

NCHRP 03-73 found that these motivations resulted in the following results within key focus areas of Mobility, Safety and Reliability, Port and Terminal Access, and LCV Operations in Urban Corridors, as follows:

Mobility: It is absolutely critical to understand daily, peak period and peak hour truck and auto travel demand when pursuing TOLs. Trucks tend to favor mid-day operation in urban areas and generally avoid peak periods to the maximum extent possible. This means that demand for truck-only lanes would be highest during the least congested periods of the day. This could have major implications for the success of tolling concepts based on the accurate estimation of potential toll revenues.

Safety and Reliability: The results from the performance evaluation conducted consistently indicated that truck-only lanes have higher safety benefits compared to mixed-flow lanes. However, the results are inconclusive in understanding the "true" incremental safety benefits of truck lanes because of the differences in capacities between the truck-only and mixed-flow lane alternatives considered in the studies, as well as key limitations in the approaches used to analyze the safety benefits of truck-only lanes.

Port and Terminal Access: In areas around ports and intermodal terminals, the research suggests there can be real benefits to communities by directing and diverting truck traffic to preferred corridors and routes beyond congestion, safety, and reliability benefits. Studies show that new truck routes or truck-only lanes on existing corridors that are designed to serve industrial areas, port and intermodal terminals and customers in dense urban settings can relieve pressure on mixed-flow freeways by providing alternative routes better aligned with existing and forecast truck flows. These studies also show that if main connectors are very congested, truck traffic often spills out onto arterial streets. Truck-only lanes may be more effective in providing relief in these situations than adding general purpose capacity because the truck lanes may be less congested providing a very beneficial alternative for trucks. They can also be planned with alignments and entry/egress locations that more closely match the routing and O-D patterns of trucks accessing the port and intermodal terminals.

LCV Operations in Urban Corridors: The benefits of LCV operations in urban corridors are likely to be very limited except in certain limited applications. In urban corridors, trucks will only spend a fraction of their trip time on freeways that might have truck-only lane options while a significant amount of time will be spent off the truck-only lane system accessing local destinations. Off system, trucks will not be able to operate as LCVs. Siting staging areas and absorbing these costs could limit the cost-effectiveness of LCV operations in urban corridors. The one exception could be cases where truck-only lanes provide high volume connections between two major freight nodes.

Benefit-Cost: The benefit-cost analysis of the urban TOL configuration suggests that truck diversion rates of 60 to 70 percent provide the highest B-C ratios for the truck-only lane alternative. And, very high diversion rates (greater than 80 percent) may not necessarily improve the performance of the truck-only lane alternative, as the truck-only lanes begin to experience congestion and the system does not have optimal capacity utilization (both on the general purpose and truck-only lanes). Comparing the B-C performance of mixed-flow and truck-only lane alternatives, the mixed flow lane alternative is observed to generally have a better B-C performance compared to the truck-only lane alternative. B-C results suggest that for truck-only lanes to have a higher B-C performance compared to mixed-flow lanes, in addition to travel time savings, they have to provide significantly higher safety and reliability benefits (compared to mixed-flow lanes). However, based on the B-C results, some applications under which truck-only lanes could be expected to have a better B-C performance relative to mixed-flow lanes include: 1) congested urban corridors where system configuration issues (e.g. terrain), may cause safety problems due to truck-auto operational conflicts, or 2) urban corridors serving as key access routes to major freight facilities where high truck and auto volumes, in addition to causing congestion, may be leading to reliability problems for international supply chains.

8.5 TRANSIT LINKAGES

This section provides a profile of existing and proposed public transportation services in or near the Illiana study area. A focus of this inventory is to explore how these services might impact, or be impacted by, the Illiana Expressway.

Amtrak provides intercity passenger rail and connecting bus service in both states as part of its national network, passing through both the Illinois and Indiana portions of the study area. Commuter rail services in Illinois and Indiana are provided by Metra and the Northern Indiana Commuter Transportation District (NICTD), respectively. Metra operates 11 routes in northeast Illinois, radiating from Chicago, including the Metra Electric line (which currently terminates on the northern edge of the study area) and the Rock Island line (which passes the northwest corner of the study area). NICTD operates South Shore Line commuter trains between South Bend and downtown Chicago, with stops in Michigan City, Gary, East Chicago, and other communities. Both Metra and NICTD are considering expansions to their rail networks that would lead to new service within the Illiana study area.

There are also several bus operators providing service in or near the Illiana study area. The largest suburban bus operator in the region, Pace, offers several feeder routes serving the Metra Electric commuter rail line on the northern edge of the Illinois part of the study area. Operators in Lake County, Indiana, and Kankakee County, Illinois, also offer express commuter rail feeder routes that pass through the study area. Both of these latter services follow routes that are currently under consideration for rail extensions.

Existing Services

Intercity Rail (Amtrak)

Amtrak was created in 1971 and is now the only significant intercity passenger rail service in the United States. Amtrak operates over approximately 21,000 route miles, 730 of which are owned by the railroad. The remainder of Amtrak's network is owned by freight railroads.

A growing share of Amtrak's operations consist of state-supported intrastate and regional lines, including three Illinois-supported intrastate lines, one line from Chicago to Milwaukee (jointly supported by Illinois and Wisconsin), and three Michigan-supported routes between Chicago and Michigan (with stops in Indiana). The Illinois legislature doubled its subsidy of in-state Amtrak routes effective in FY 2007. The additional funding (to $24.2 million per year)[19] allowed Amtrak to increase service frequency on lines between Chicago and St. Louis (to five trains per day), Quincy (to two trains per day), and Carbondale (to two trains per day). The increased service frequencies helped drive significant ridership gains in FY 2007, of between 41% and 67% on the three downstate corridors.[20]

Amtrak routes in and near the Illiana study area are shown in Figure 8.3.

Figure 8.3 Amtrak Routes in Northeast Illinois and Northwest Indiana

Source: Amtrak Route Atlas.

Note: Red lines are Amtrak train routes. Green lines are Thruway Service motorcoach routes.

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[19] Office of the Governor of Illinois. February 18, 2007. Available at http://www.illinois.gov/PressReleases/ShowPressRelease.cfm?RecNum=5727&SubjectID=14.

[20] Amtrak. State Factsheets, Fiscal Year 2007, available at http://www.amtrak.com/pdf/factsheets/ILLINOIS07.pdf.

Illinois Routes

Amtrak operates 56 trains every day in Illinois, including eight long-distance routes with daily service (inbound and outbound) and nine short distance "corridor" routes totaling another 20 trips each way. The majority of the corridor services connect intrastate destinations, but these routes also extend to St. Louis and Kansas City, Missouri; Milwaukee, Wisconsin; Indianapolis, Indiana; and Port Huron, Grand Rapids, and Detroit, Michigan. Four states (Illinois, Michigan, Missouri, and Wisconsin) provide support for routes originating in Illinois.

In Illinois, two Amtrak stations, in Homewood and Kankakee, lie just north and south of the Illiana study area, respectively. Those two stations collectively saw approximately 47,000 combined boardings and alightings in FY 2008, accounting for approximately 1% of the total for the state of Illinois. Both stations are served by the state-supported Chicago-Carbondale route (*Illini* and *Saluki* trains), which runs twice daily in each direction, and the long-distance *City of New Orleans* route, which operates once daily in each direction between Chicago, Memphis, and New Orleans.

Indiana Routes

Amtrak operates three daily long-distance routes with stops in Indiana.[21] In addition, three routes supported by the state of Michigan pass through Indiana, although only one of those routes, the *Wolverine* between Chicago and Pontiac (via Detroit) actually stops in Indiana, in the cities of Hammond and Michigan City.

The *Cardinal*/*Hoosier State* route between Chicago and Indianapolis (continuing to/from Cincinnati, Washington, and New York three days per week) has stops just north and south of the Illiana study area, in Dyer and Rensselaer, respectively. Those two stations collectively saw 3,992 combined boardings and alightings in FY 2008, just over 3% of the total for Indiana. Both stations are served once daily in each direction.

Commuter Rail

Metra

Metra operates 11 routes connecting the suburbs around Chicago with the city's downtown. Two of these 11 routes operate within or adjacent to the Illinois portion of the Illiana study area, providing service seven days per week (see Figure 8.4):

[21] Note: The *Cardinal* route operates three days per week, between Chicago and Washington, DC, with stops in Indiana. On the four days that the *Cardinal* does not operate, Amtrak runs the *Hoosier State* route along Indianapolis-Chicago segment of the *Cardinal* route.

- Approximately 30 trains per weekday operate to and from University Park, the southern terminus of the Metra Electric (ME) Main Line, just inside the northern edge of the Illiana study area. The ME line is the second busiest in the system, carrying over 10.8 million passengers in 2007.[22] An average of 2,460 passengers boarded and alighted at University Park per weekday in 2006, the last year for which station-specific data was available.[23]
- The Metra Rock Island (RI) Line between Chicago and Joliet makes four stops in the towns of Mokena and Tinley Park, just northwest of the Illiana study area. Currently, Metra operates more than 20 inbound and outbound trains to these stations each weekday. The RI is the third busiest line in the Metra system, carrying over 9.1 million passengers in 2007.[24] An average of 11,032 passengers boarded and alighted at the four stations in Mokena and Tinley Park each weekday in 2006, the last year for which station-specific data were available.[25]

All of the stations listed above have both cash and monthly permit parking available, administered by the local municipalities. The proximity of these five stations to the proposed western terminus of the Illiana Expressway is conducive to providing increased parking or a multimodal transfer facility in this area. A new Metra line, as well as an eight-mile extension of the Metra Electric line, are also proposed and both would directly serve the study area (as described later in this section).

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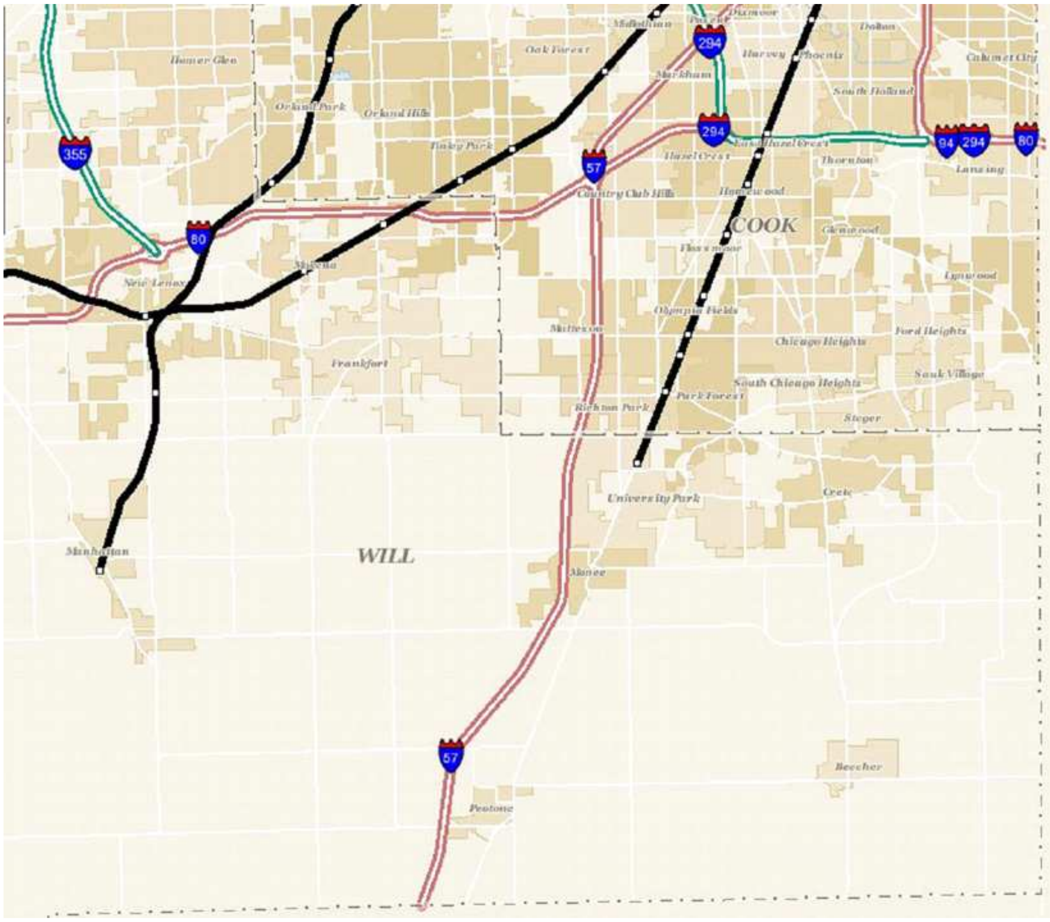
[22] "National Transit Database Operating and System Statistics," provided by Metra, August 2008.

[23] "University Park (Electric) Weekday Ridership." *Regional Transportation Asset Management System (RTAMS)*, Regional Transportation Authority. Accessed December 5, 2008. Available at http://www.rtams.org.

[24] Ibid.

[25] "Rock Island District Main Line Weekday Ridership." *Regional Transportation Asset Management System (RTAMS)*, Regional Transportation Authority. Accessed December 5, 2008. Available at http://www.rtams.org.

Figure 8.4 Metra Routes Near the Illiana Study Area



Source: Regional Transportation Asset Management System (http://www.rtams.org).

Note: Metra lines are shown in black.

<u>Northern Indiana Commuter Transportation District</u>

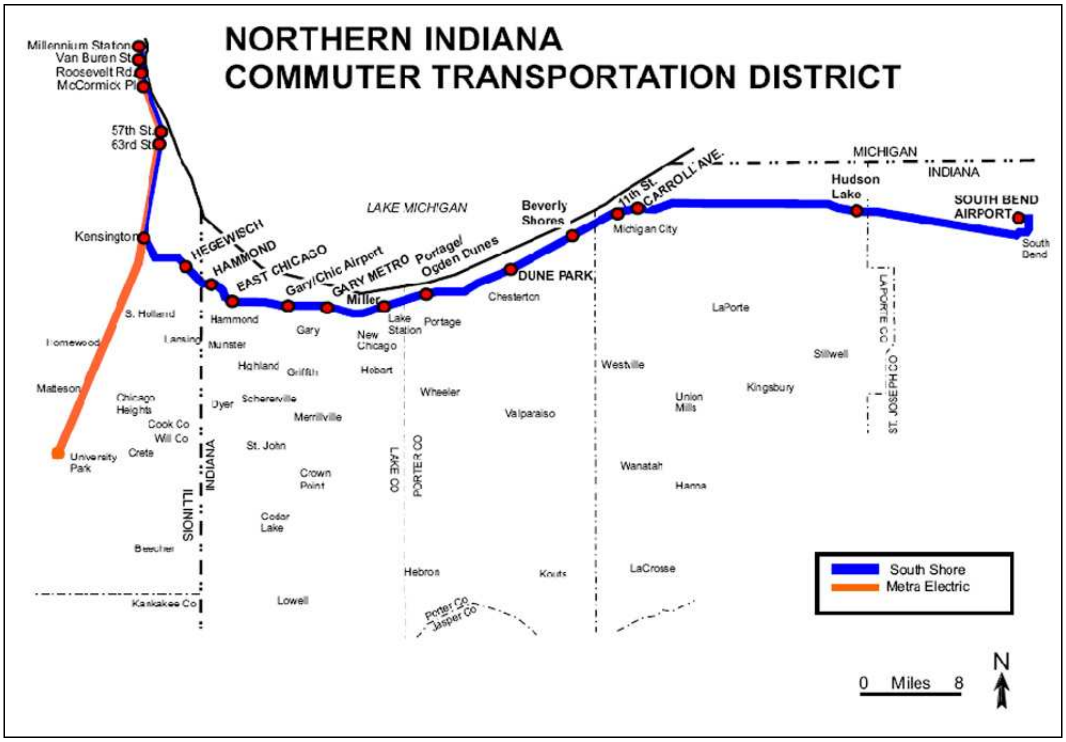
The Northern Indiana Commuter Transportation District (NICTD) has operated the South Shore Line commuter rail service since the 1980s, before which it was a privately operated rail line. The South Shore Line runs from Millennium Park station in Chicago to South Bend Airport, through the northern portions of Lake, Porter, LaPorte, and St. Joseph Counties in Indiana. At its closest, the line is approximately 10 miles north of the Illiana study area's northern boundary. The South Shore Line carried over 4.2 million passengers in 2007.[26]

Currently, NICTD operates 18 westbound and 19 eastbound trains each weekday between Indiana and Millennium Station in Chicago, and nine trains in each

[26] Ibid.

direction on Saturdays, Sundays, and holidays. Figure 8.5 is a route map of the system showing the South Shore Line and its stops.

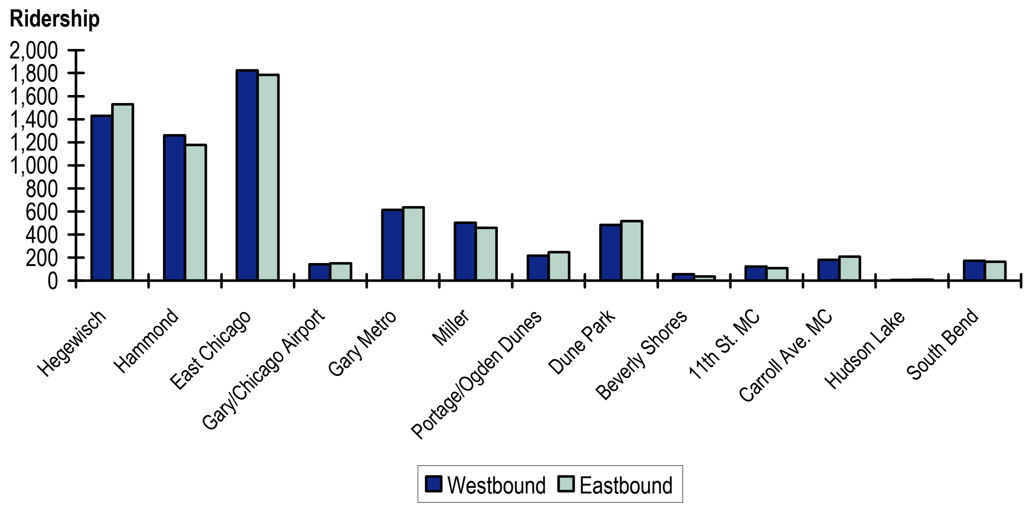
Figure 8.5 NICTD South Shore Line Route Map



Source: NICTD. Available at http://www.nictd.com/service/SystemMap.pdf.

Figure 8.6 presents 2006 average weekday ridership by station on the South Shore Line for both eastbound and westbound trips. These numbers include both boardings and alightings; hence, the westbound numbers are predominantly boardings, while the eastbound figures are mostly alightings. East Chicago, Hegewisch, and Hammond are by far the busiest stops; together, these three stations comprise more than 64 percent of South Shore Line ridership. The Gary Metro, Dune Park, and Miller stations also have significant ridership.

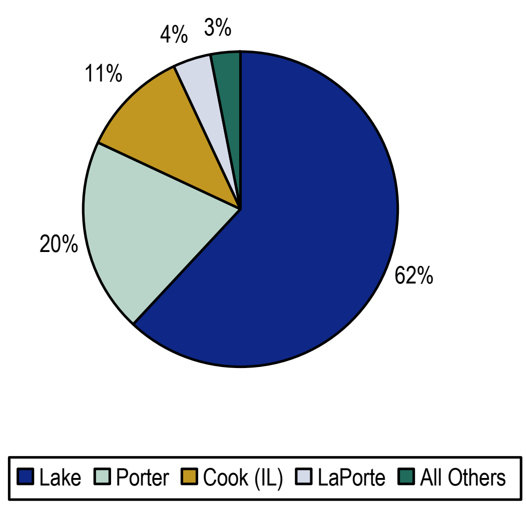
Figure 8.6 South Shore Line Average Weekday Ridership by Station *(2006)*



Source: NICTD.

Figure 8.7 shows the originating counties for South Shore Line riders in 2004, based on a survey conducted by NICTD. More than 80 percent of riders came from either Lake or Porter Counties, with Lake County making up a particularly large share of the total. This further illustrates that the majority of South Shore Line riders are commuting from their homes in northwestern Indiana, primarily Lake County, two thirds of which is within the Illiana study area.

Figure 8.7 Source Countiees for South Shore Line Riders *(2004)*



Source: NICTD.

The vast majority (88 percent) of NICTD riders drive their own vehicles to a South Shore Line station to get on the train. Nine percent arrive by car as passengers, while relatively small proportions access stations by walking or bus. Stations that are located in downtown areas and/or are served by bus tend to have more commuters arriving by foot or by bus. Most South Shore Line passengers board in the western portion of the NICTD service area. In 2004, 79 percent of riders boarded at the Miller station in eastern Gary or points west.[27] The extremely high proportion of riders using the western portion of the line, and arriving by car, illustrates the importance of the South Shore Line as a connection to Chicago for not only those living near the line, but also throughout Lake County and northwest Indiana, including the Illiana study area.

There are two proposed extensions to the South Shore Line currently under consideration, both of which would appear in the form of new branch lines to the existing service, diverging from the existing main line near the Indiana-Illinois border and reaching further south into Lake County. At least one of these proposed branch lines would extend into the Illiana study area, as described later in this section.

Bus Services

Pace Suburban Bus Service

Pace is the suburban bus operator for six counties in northeast Illinois, operating 240 bus routes within a service area covering over 3,500 square miles. Pace offers several local bus routes in the northern portion of the Illiana study area, including the #358, #362, #367, #357, and #753 (See Figure 8.8). These routes operate as feeder services to Metra or South Shore Line commuter trains. These types of feeder services are an area of focus for Pace, with 122 Metra stations served systemwide. Other routes that just penetrate the northern portion of the study area along US 30 include #352, #370, and #890.

Although Pace also offers longer distance express bus services, no such routes operate in the Illiana study area. Express services generally operate from park-and-ride facilities in the periphery of the region, and could be initiated in the study area if an appropriate facility were constructed, potentially as part of the Illiana Expressway project.

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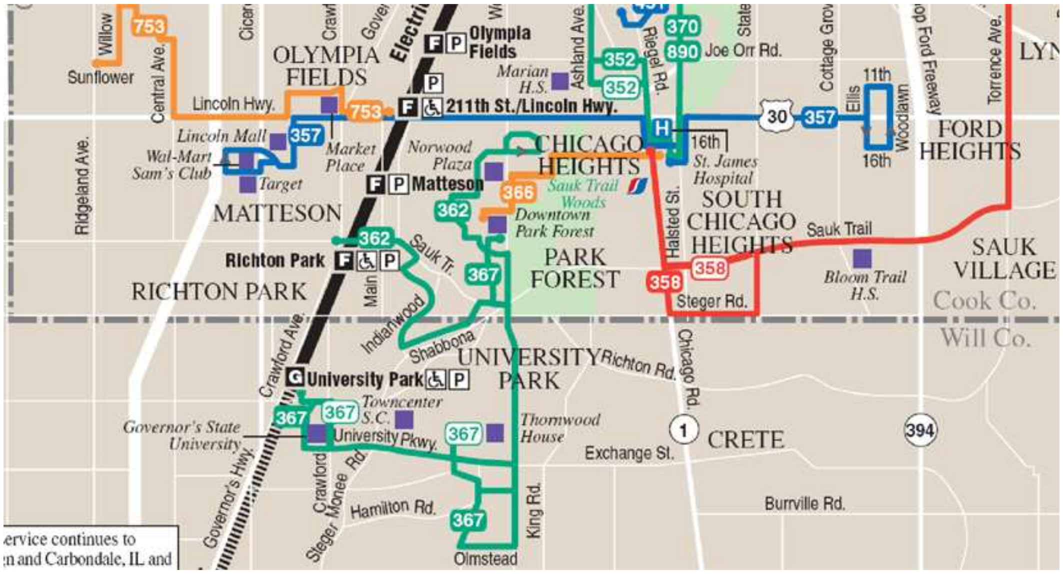
[27] Northern Indiana Commuter Transportation District. *NICTD 2004 Commuter Survey Analysis Report*. 2004.

Figure 8.8 Pace Suburban Bus Routes in Southern Cook County and Will County, Illinois

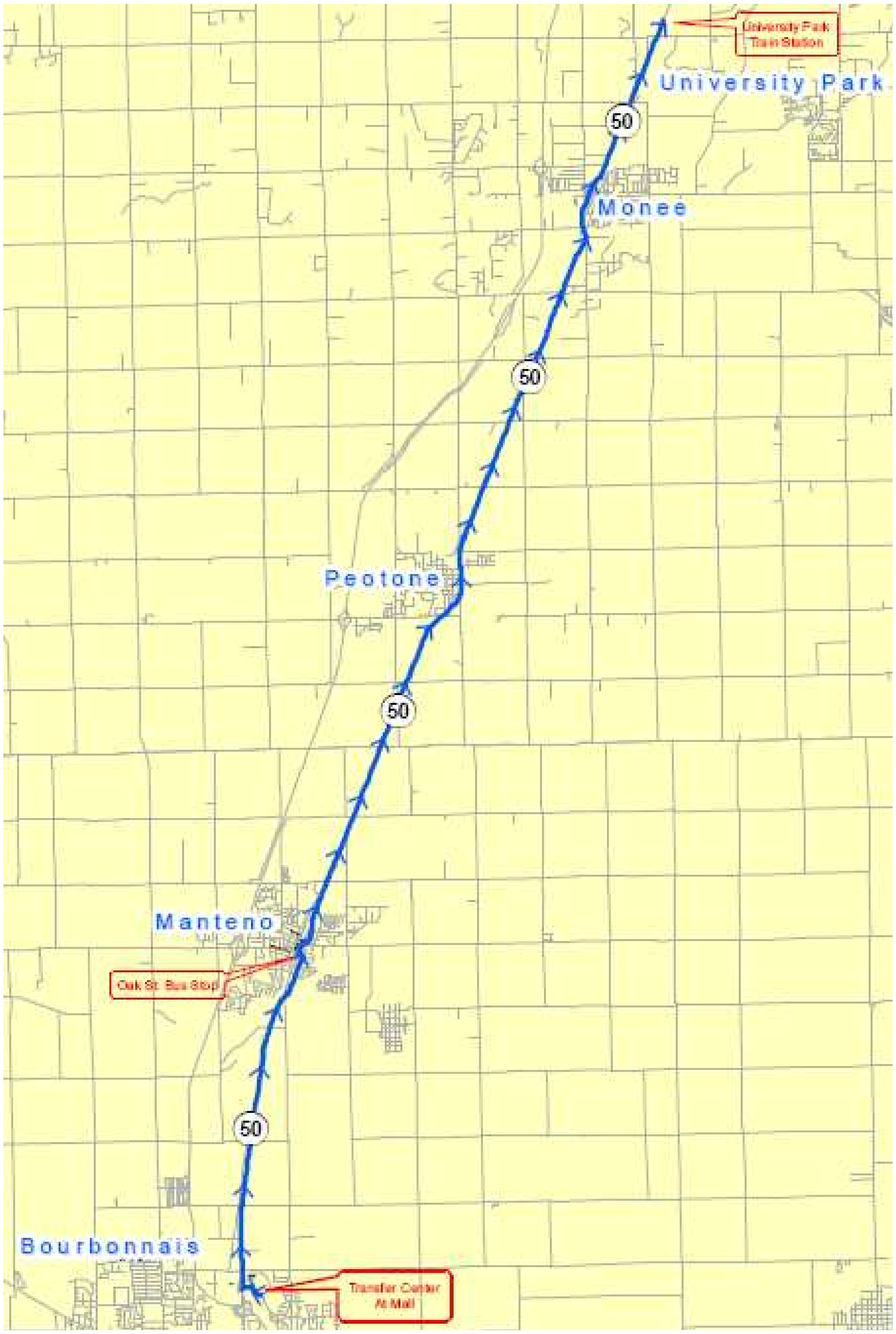


Source: Regional Transportation Authority.

<u>River Valley Metro</u>

River Valley Metro Mass Transit District operates 11 bus routes in and around the city of Kankakee, Illinois, south of the Illiana study area. While the routes are primarily local services connecting the communities of Kankakee County, River Valley Metro also operates an express bus between the town of Bradley (just north of Kankakee and south of the Illiana study area) and the University Park terminal of the Metra ME line. The north-south route runs express along IL 50 through the entire western end of the study area, with a stop in Manteno, inside the study area (See Figure 8.9). This route offers 12 round trips per weekday between Bradley and University Park.

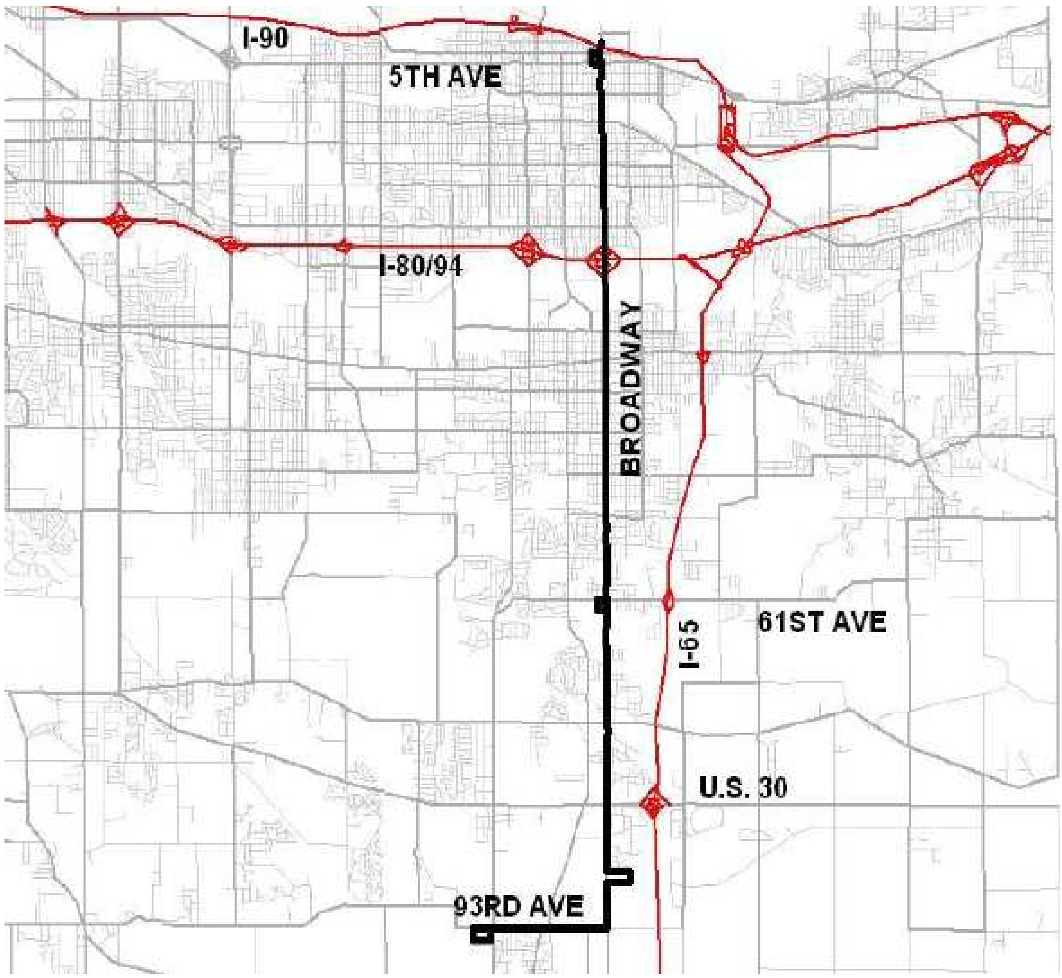
Figure 8.9 River Valley Metro University Park Route



Gary Public Transportation Corporation

Although there are a number of municipal transit operators in Lake County, Indiana, the only one operating service between municipalities in or near the Illiana study area is the Gary Public Transportation Corporation (GPTC). GPTC operates the "Broadway Express" between Gary and the Lake County Government Center in Crown Point, as shown in Figure 8.10.

Figure 8.10 GPTC Broadway Express Route



Proposed Services and Expansions

Midwest Regional Rail Initiative

The Midwest Regional Rail Initiative (MWRRI) is an ongoing effort to improve rail service in the Midwest, sponsored by transportation agencies from the states of Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Nebraska, Ohio, and Wisconsin. Additional sponsors and stakeholders include Greyhound Lines, Inc., the Federal Railroad Administration (FRA), and Amtrak.

The proposed Midwest Regional Rail System (MWRRS) is the result of the vision of these agencies and stakeholders. The plan for the MWRRS calls for significant improvements to passenger rail services in the Midwest through the following:

- A 3,000-mile system, using existing rail rights-of-way shared with freight and commuter rail (Figure 8.11);
- Safe, comfortable and reliable service to over 100 Midwestern cities, linking the region's major economic centers;
- Access to approximately 80 percent of the region's 65 million residents;
- State-of-the-art train equipment capable of operating at speeds of up to 110 mph;
- More and better amenities, including first class seating for all, power outlets at each seat, wireless network access and food service;
- Modern stations and intermodal facilities; and
- Dedicated feeder bus service connecting communities without direct rail service to the system.

In addition to providing shorter travel times, reducing congestion on all modes of travel, and improving the environment, the MWRRS is designed to provide economic benefits and new jobs by reinvigorating the region's manufacturing, service, and tourism industries. Freight rail operations also will benefit from reduced congestion and enhanced safety as a result of MWRRS track and signal improvements in shared corridors. The MWRRS Executive Report estimated a benefit/cost ratio of 1.8 for the project, one of the highest returns for any regional rail system in the United States.[28]

[28] *Midwest Regional Rail System Executive Report.* September 2004. Available at http://www.dot.wisconsin.gov/projects/state/docs/railmidwest.pdf.

Figure 8.11 MWRRS Network

Source: Midwest Regional Rail System Executive Report.

The two MWRRS routes relevant to the Illiana study area are both existing routes that would be upgraded to allow faster travel times and more frequent service. On the Illinois side, the Chicago-Carbondale route would continue in its current alignment, with track and grade crossing upgrades to allow speeds up to 90 miles per hour. On the Indiana side, current daily service between Chicago and Indianapolis would extend to Cincinnati (where it currently runs three days per week), with upgrades allowing speeds up to 110 miles per hour. It is uncertain whether this route would use the existing corridor or follow a new alignment. The MWRRI also calls for increased frequencies on both corridors, with up to five daily round trips between Chicago and Champaign (two of which continue to Carbondale) and up to six round trips between Chicago and Indianapolis (five of which continue to Cincinnati)[29]. Spur service between Indianapolis and Louisville has also been proposed, although this is not part of the officially adopted MWRRS network.

[29] Ibid.

Metra Expansions

Metra is considering a number of major improvements and expansions to its services, including two entirely new lines, and extensions to three other existing lines. Two proposals relevant to the Illiana study area are a proposed extension of the Metra Electric main line from its current southern terminus in University Park to the proposed South Suburban Airport in Peotone, Illinois, and a proposed new line, the SouthEast Service, between Chicago and Crete, Illinois.

ME Extension

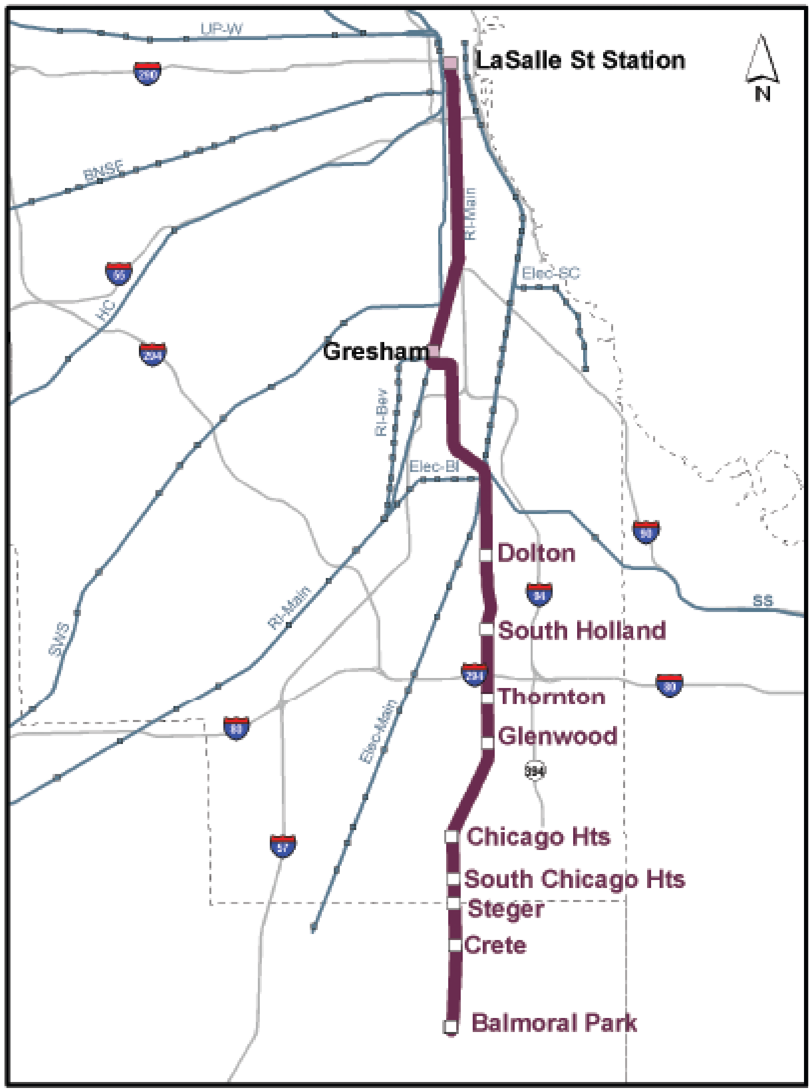
In conjunction with plans for the South Suburban Airport in Peotone, Illinois (within the Illiana study area), the Regional Transportation Authority's "Moving Beyond Congestion" Regional Transportation Strategic Plan includes a proposed eight-mile extension of the Metra Electric (ME) line.[30] The ME extension would continue the ME's main line from its current terminus at University Park, south to the proposed airport site. Not only would this line connect to the major employment and travel destination at the new airport, but it would also run roughly parallel to I-57, with potential to intersect one of the proposed Illiana corridors near an interchange. Thus, the ME extension would provide opportunities for a park-and-ride facility or multimodal passenger transfer center within the study area. This project has not yet undergone an Alternatives Analysis or other steps in the federal New Starts application process. In a related project, consideration is also being given to extending the Metra Electric Line to serve a new yard to be located in the Peotone area.

SouthEast Service

An Alternatives Analysis is currently underway for the Metra SouthEast Service commuter rail line, which would extend from downtown Chicago south to the Village of Crete. This commuter rail line, which would utilize the existing trackage of the Union Pacific and CSX Railroads, has potential to intersect one of the proposed Illiana corridors near an interchange, providing and opportunity for a park-and-ride facility or multimodal passenger transfer center. The proposed route for the SouthEast Service is shown in Figure 8.12. Metra is seeking federal funds for the proposed SouthEast Service project, and has begun the New Starts application process.

[30] Regional Transportation Authority (Chicago, Illinois). "Moving Beyond Congestion 2007 – The Year of Decision Regional Transportation Strategic Plan." February 8, 2007. Available at http://movingbeyondcongestion.org/downloads/MBC_FINAL_REPORT.pdf .

Figure 8.12 Proposed Metra SouthEast Service



Source: Metra.

NICTD West Lake Corridor

NICTD is currently considering two potential new branches of the South Shore Line: one to Lowell, Indiana, and the other to Valparaiso, Indiana. If both were constructed, they would diverge from the existing main line in Hammond, head south to Munster, where the two branches would split and continue to Lowell and Valparaiso. On its way to Lowell, the Lowell branch would extend through the towns of Dyer, St. John, and Cedar Lake. All four of these cities are within the Illiana study area.

The proposed terminal in Lowell has potential to intersect one of the proposed Illiana corridors near an interchange, providing an opportunity for a park-and-ride facility or multimodal transfer center. As part of the federal New Starts process, an Alternatives Analysis currently is underway for both proposed branches and will result in the identification of a Locally Preferred Alternative and the preparation of an Environmental Assessment.

Bus Alternatives

Among the four "build" alternatives for the West Lake Corridor, the study team also developed a "Regional Express Bus" alternative. Under this scenario, six express bus routes would be developed as feeders to the existing South Shore Line, meeting the rail line at stations in Hammond, Gary, and Dune Park. As currently designed, three of these six routes would serve the Illiana study area, terminating at Dyer, St. John, and Lowell. Some or all of these might still be viable transfer center locations, potentially developed in conjunction with the Illiana Expressway.

Regional Bus Authority

The Regional Bus Authority (RBA) of northwest Indiana was created by state legislation in 2005 with the mission of coordinating services of the existing three fixed-route and five demand-responsive transit operators in Lake County, and to expand services to meet needs in the region. A 2006 Strategic and Operations Plan found that serving this demand would mean a doubling of current ridership, with the largest improvements focused on southern Lake and Porter Counties. Southern Lake County corresponds with the Indiana side of the Illiana study area. As of 2008, Lake County's three municipal fixed-route operators remained independent, with the RBA providing supplementary funding and also coordinating a new express bus service between Valparaiso and Chicago. The RBA has also attached a regional brand, *EasyGo*, to the locally operated bus routes that it supplements.

While implementation of regional bus services and inter-agency coordination is a gradual, incremental progress, the existence and growing influence of the RBA and the proposed Illiana Expressway may be mutually beneficial to one another. The RBA's strategic plan calls for transit improvements within the Illiana study area, and this priority is reflected in one of the first funding actions, providing a grant to add service to GPTC's Broadway Express route between Gary and Crown Point (discussed in Section 0). At the same time, the proposed Illiana Expressway offers improved east-west mobility in the region, and would create logical park-and-ride locations and express bus termini at the expressway's interchanges.

Other Potential Services

By creating a new, uncongested east-west route in southern Lake County and Will or Kankakee County, the Illiana Expressway would provide the potential for new express bus services to, from, and through the communities within the study area. Most of the existing and planned bus service within the study area, described in the previous sections, is comprised of feeders to commuter rail lines.

These types of services would likely continue to be the most viable in the future. In particular, if the ME and South Shore lines are extended south into the study area, the Illiana Expressway could serve as a high-speed conduit for express feeder services to these rail lines.

Locally-oriented services would depend on the ongoing development of major employment centers within the corridor. Major employment centers, such as the proposed South Suburban Airport or the proposed Crete intermodal center, could attract multiple regional bus services even in the absence of rail service extensions, bringing passengers from Chicago as well as suburban communities in both Indiana and Illinois.

8.6 Safety

The Illiana Expressway offers an opportunity to improve traffic safety. The expressway is anticipated to shift traffic from lower functional class, more dangerous roadways such as non-divided two-lane arterials onto a safer facility which meets modern Interstate Highway safety standards. Also, as part of providing a safer, east-west travel alternative to I-80 and US 30, Illiana is anticipated to reduce traffic volumes on these parallel facilities, ultimately reducing overall crashes, injuries, and fatalities in the area.

Construction of the Illiana Expressway will also impact emergency services by improving the reliability, efficiency, and connectivity of the transportation system, enabling emergency service providers to safely and quickly service the public in the event of an emergency.

Traffic Safety

The Illiana Purpose and Need discussed in Section 2 the high number of crashes which occur on highways and local roads in the Illiana area. The key roadways (including State, U.S. and Interstate Highways within the Illiana region) were the site of approximately 9,000 crashes on an average annual basis. This number was anticipated to increase to approximately 11,000 in 2030 with crash rates held constant. Similarly, crashes on arterials and local roads in the area were anticipated to increase from a 2005 base of an estimated 15,000 occurrences to a projected 20,500 by 2030.

Construction of the Illiana Expressway presents an opportunity to shift traffic onto a safer facility meeting modern Interstate Highway safety standards. The impacts of each of the three corridor alignments compared to the No-Build scenario can be found in Table 8.11. AC3 offers the most benefit, with an estimated annual reduction of 384 crashes and an estimated two lives saved annually due to the greater amount of traffic being diverted from rural roads, lower classification roads, and highly congested highways. There are similar crash reductions associated with construction of AC2 and AC1.

One of the short-term goals of INDOT has been to reduce annual fatalities by 19 between 2007 and 2009,[31] highlighting the difficulties of making fatality reductions. The cost savings of preventing two fatalities per year, as forecasted for the Illiana Expressway, are estimated to be close to $2.2M, and preventing 384 crashes could prevent another $2.9M in economic loss due to potential injury and medical costs, loss of productivity, legal costs, travel delay and other factors.[32]

Table 8.11 Corridor Impacts on Crashes

Estimated Safety Performance	No Build	AC1	AC2	AC3
Crashes				
Est. Annual Crashes (2030+)	31,560	31,210	31,195	31,175
Change from No Build (%)	N/A	-1.1%	-1.2%	-1.2%
Crashes Avoided Annually	N/A	350	365	384
Fatalities				
Est. Annual Fatalities (2030+)	148.6	146.8	146.3	146.5
Change from No Build (%)	N/A	-1.3%	-1.5%	-1.4%
Lives Saved Annually	N/A	1.9	2.3	2.1

Emergency Services and Evacuation

The Illiana Purpose and Need statement also highlighted the importance of a well-connected roadway network that allows emergency medical service (EMS) providers to move safely and swiftly between crash and incident sites and hospitals and emergency centers. Both INDOT and IDOT have included the reduction of EMS response times as an important element of a comprehensive highway safety program. The Illiana Expressway offers the opportunity to provide increased accessibility and connectivity within the region, improving the safety of motorists on the road and citizens at home.

The potential benefit of the Illiana Expressway to emergency services can be seen primarily through reduced travel times. The travel time savings shown in Table 8.3 could help emergency responders reach victims quickly, improving the chance of successfully treating injuries, preventing fatalities, and clearing roadways to prevent secondary crashes and limit delays. The traffic flows reviewed in Table 8.3 are primarily longer, highway trips. The Illiana Expressway could provide benefit by offering an alternative to local roads for shorter EMS trips as well as longer highway trips.

[31] InDOT Crash Facts 2007, http://www.in.gov/cji/files/CrashFactBook_08_FINAL.pdf.

[32] Ibid. Relies on NHTSA figures (2007 dollars) for crash costs.

The Illiana Expressway would also provide a critical alternative to I-80 and US 30 in the event of a necessary evacuation of Chicago and/or northwest Indiana. The importance of a reliable evacuation network has been highlighted by recent events such as the terrorist attacks of 9/11, Hurricane Katrina, and the flooding of Cedar Rapids, IA. The flooding of the Borman in September 2008 exposed the difficulty of managing regional traffic flows without this primary east-west corridor. Illiana could handle major traffic flow shifts that would overwhelm other east-west facilities such as US 30 in the case of an evacuation or major roadway closure.

8.7 Environmental Impacts

This section discusses the environmentally sensitive and man made features that are located near the proposed Illiana corridors. Man made features are those that change the natural landscape and include structures, landfills and disposal sites, cemeteries, airports, and other land types.

Each of the three corridors will include travel lanes serving east-west travel. These corridors would intersect with four major north-south roadways, including I-65 and US 41 in Indiana and IL 1/IL 394 and I-57 in Illinois. The corridors vary in length from approximately 26 to 33 miles, and the distance between the northernmost and southernmost corridor interchanges is approximately 9 miles along I-57 in Illinois and 5 miles on I-65 in Indiana. The specific roadway corridor details are discussed in Section 5 of this report.

The proposed Illiana alignment alternative corridors are shown in Figure 4.7. The width of the corridors are displayed in 1000, 2000, and 3000 foot increments. The planning level width for the roadway typical section is assumed to be 450 feet in its widest alternative in order to accommodate 4 general purpose travel lanes and 4 truck-only lanes. It is assumed that the 450 foot width would be located within the 1000, 2000, and 3000 foot corridors so that the environmentally sensitive and developed features can be avoided.

Table 8.12 presents a summary of the number of managed land polygons, airports, structures, hazardous material locations, mapped species, wetland areas, endangered species, and cemeteries that exists within the 3,000 foot corridors for AC1, AC2 and AC3. The number of features counted within each analysis interval was derived from the aerial photographs used for this study. The actual alignment of the roadway within the corridors, which will consume substantially less than 3,000 feet of ROW, will be developed so that the actual number of impacted areas is minimized; nevertheless, the tabled information is useful for planning level comparison between the corridors. The information contained in Table 4.5 is a useful reference for comparing AC1, AC2 and AC3 relative to each other. AC3 potentially affects the most structures (1,024 structures) and the most wetland areas (106 wetlands). Due to these findings, it is anticipated that the financial and environmental costs may be higher for AC3 compared to AC1 and AC2 for associated right of way purchases and remediation requirements.

Figure 8.13 Corridor Constraints

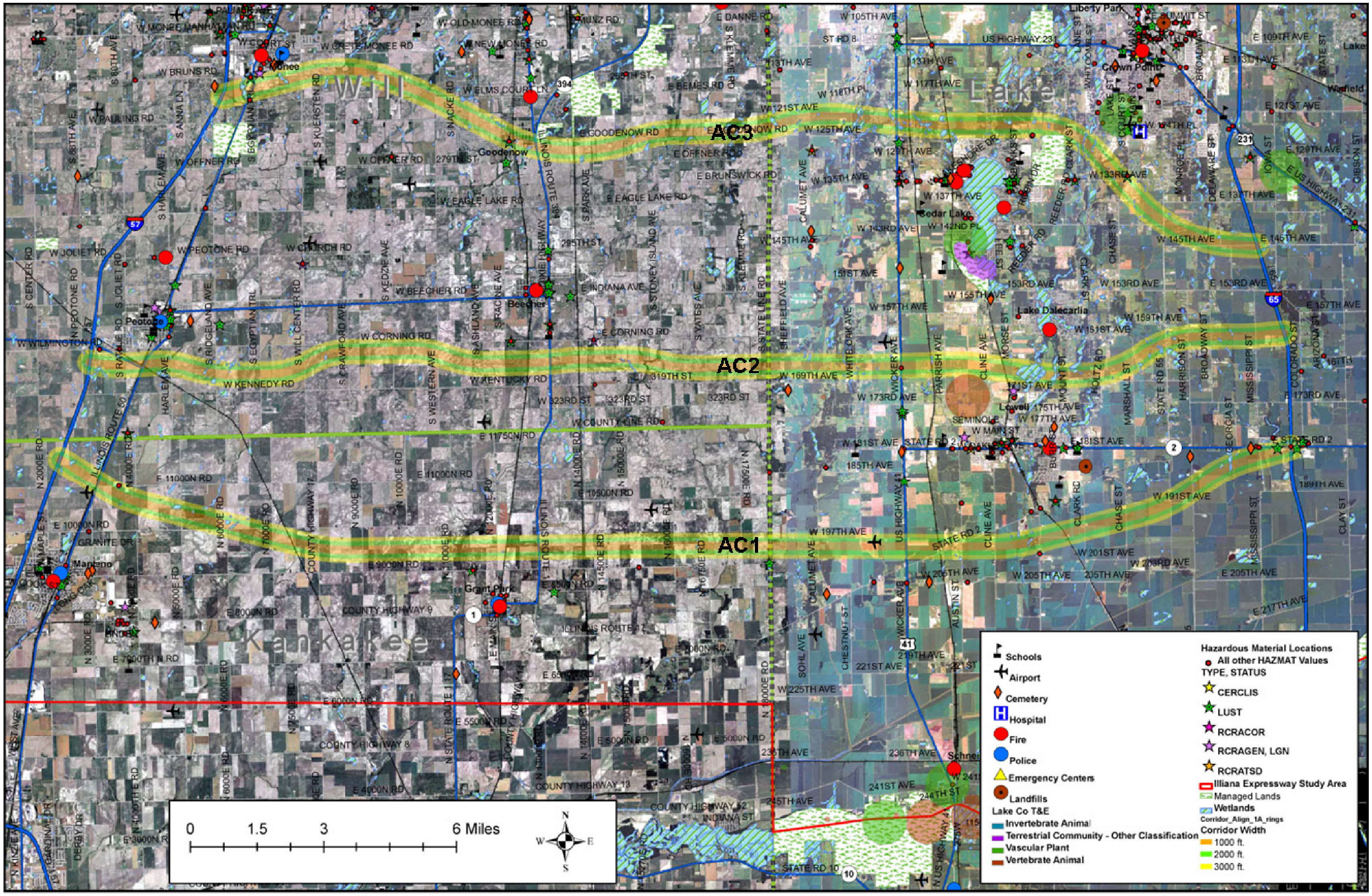


Table 8.12 Constraining Features – 3,000-Foot Corridor

Corridor	Managed Land Areas	Airports	Structures	Hazardous Material Locations	Wetland Areas	Mapped Species	Cemeteries
AC1	0	1	167	2	38	0	1
AC2	0	0	231	1	76	1	0
AC3	2	0	1,024	5	106	0	0

Air Quality

Transportation is a major contributor to all three of Chicago's nonattainment pollutants and part of the EPA strategy to reduce pollutants includes limiting congestion. Additional capacity in the Illiana Study Area could have a positive impact on localized air quality hot spots by relieving the heavy levels of congestion on principal east-west corridors, but could also generate more total traffic within the region.

Table 8.13 shows the estimated impacts that the three Illiana Expressway alignment corridor alternatives would have on certain emission subcategories within the Illiana impact area. Among the three alternatives, carbon dioxide emissions could be expected to increase by approximately seven percent versus the No Build scenario; hydrocarbon emissions could be expected to increase by approximately 5 percent; and nitrogen oxide could be expected to increase by approximately 1.4 percent.

Table 8.13 Illiana Impacts on Emissions (Illiana Impact Area)

	Percentage Change vs. No Build Scenario		
Vehicle Type	AC1	AC2	AC3
Carbon Dioxide Emissions	6.5%	7.2%	7.8%
Hydrocarbon Emissions	4.4%	4.8%	5.2%
Nitrogen Oxide Emissions	1.4%	1.4%	1.5%

Emissions reported in annual million short tons. Emission rates based on MOBILE5 estimates for average vehicle emission by speed per VMT.

Fuel Consumption

Congestion and delay have a significant impact on fuel consumption rates. While fuel efficiency in vehicles has improved (the average miles per gallon rating for new passenger cars in 2008 was 31.2, a 28 percent increase over 1980 ratings, and light trucks have seen a similar improvement of about 26 percent to the current average rating of 23.4,[33]) when vehicles are operated in congested conditions, fuel economy suffers.

In 2006, transportation accounted for 28 percent of the United States' total energy consumption and 96.2 percent of transportation fuel consumption was in the form of petroleum.[34] Highway travel (non-transit) accounted for 83 percent of transportation fuel consumption with vehicles traveling an average of 17.2 miles per gallon of fuel.[35]

Drivers in the Chicago Urban Area (which includes northwest Indiana) wasted an estimated 142 million gallons of fuel due to congested conditions, the third largest quantity in the U.S. behind New York and Los Angeles.[36] Figure 8.14 shows the trend in wasted fuel for the Chicago area. The fuel wasted due to congestion has nearly doubled between 1995 and 2005. 2005 values for fuel wasted in traffic equate to an approximate average of 32 gallons of fuel for each person in the region.

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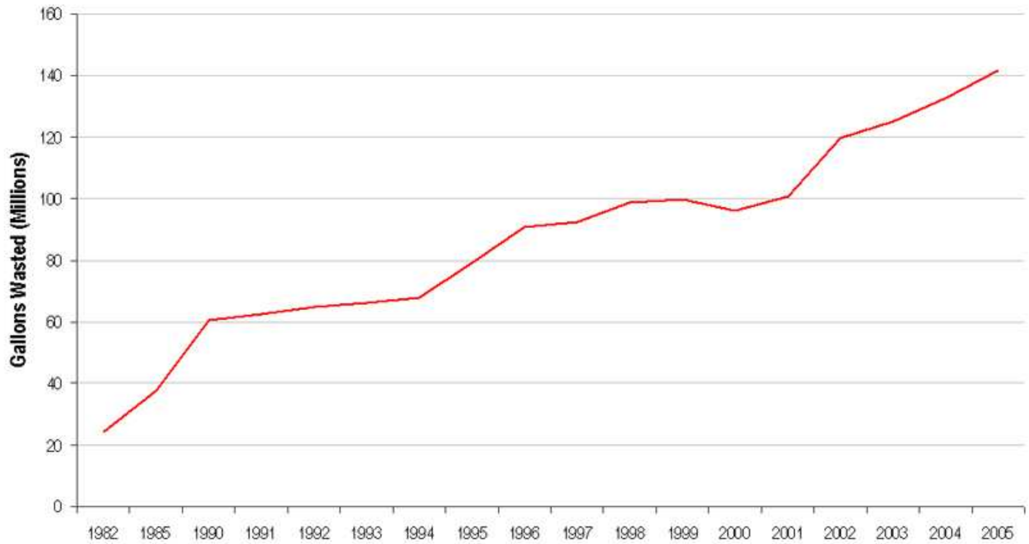
[33] Bureau of Transportation Statistics. *National Transportation Statistics*. 2008.

[34] Ibid.

[35] Ibid.

[36] Texas Transportation Institute. The 2007 Annual Urban Mobility Report (College Station, Texas: 2007).

Figure 8.14 Trends in Gallons of Fuel Wasted in Chicago Area



Source: Texas Transportation Institute, The 2007 Annual Urban Mobility Report.

Using Illiana model estimates for increases in hours of delay, it can be assumed that 2005 wasted fuel volumes will grow by at least an additional 50 percent by 2030 in the entire region if fuel efficiencies are held constant. However, increases in fuel efficiency are likely to slow this upward trend.

Based on model estimations for travel speed and overall VMT, the Illiana Expressway alternatives are estimated to have a minimal impact on overall fuel consumption. AC1 shows an estimated increase of 4.1 percent in fuel consumption over the No Build scenario within the Illiana impact area. AC2 shows an estimated increase of 4.5 percent and AC3 shows an estimated increase of 4.9 percent.[37] These increases consider only the Illiana impact area, not the entire region. The increases are likely due to small increases in overall VMT as more vehicles travel further to access the faster, limited access facility.

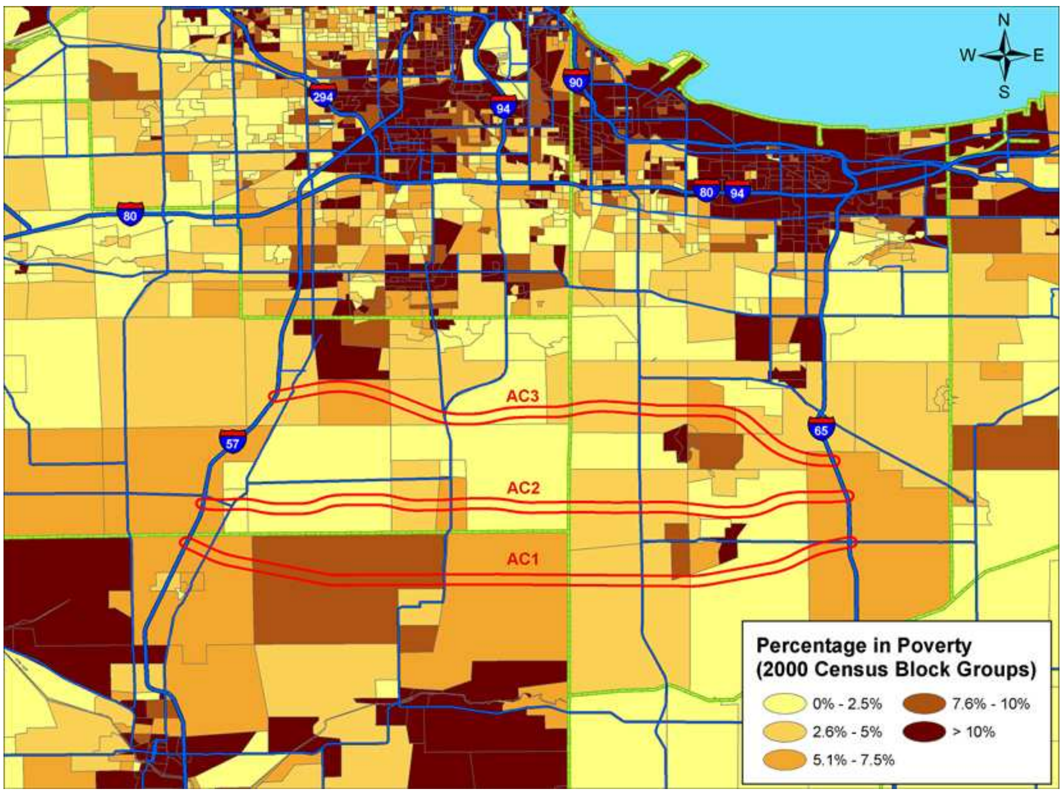
8.8 Environmental Justice

There are two important elements of environmental justice to be addressed when considering the impacts of a new transportation facility. The first is disproportional displacement of lower income households by the infrastructure of a new transportation facility. The second is ensuring the benefits of a new transportation facility are fairly distributed and not confined only to higher income households.

[37] Based on MOBILE5 estimates for average fuel consumption by speed and VMT.

Figure 8.15 shows the percentage of households within each census block group which fall below the U.S. Census threshold for poverty. For the entire area shown, approximately 10 percent of the households fall under the poverty threshold. The urbanized areas of south Chicago and neighboring suburbs, and Gary and neighboring suburbs show the highest concentrations of poverty. As can be seen in the figure, the proposed Illiana Expressway alignment corridors do not disproportionately displace poverty-stricken households. The paths of the three alternatives go through primarily rural land with a percentage of poverty-stricken households generally lower than five percent.

Figure 8.15 Poverty Levels in Illiana Study Area



The primary benefits of the proposed Illiana Expressway come through reduced travel times and improved mobility, ensuring households can access work, shopping, and leisure activities via a fast and reliable transportation network. These benefits can be measured using an accessibility index, described in detail in the socio-economic section (Section 9.8). As can be seen in Figure 8.20 (Change in Composite Accessibility Measure – 2030 Hybrid Alternative (AC2) as Compared to 2030 No-Build Network) later in this section, construction of an Illiana Expressway is expected to produce some accessibility benefits for the region. These benefits are most pronounced in western Will County and central Lake County near the proposed alignment corridors. The distribution of the accessibility benefits of the Illiana Expressway are anticipated to spread widely and are not restricted to higher income areas. Overall, there are few significant environmental justice concerns within this primarily rural expressway.

8.9 SOCIOECONOMIC TRENDS, FORECAST UPDATE AND IMPACTS

The major study objectives of the Socioeconomic Trends and Forecast Update and Analysis of Socioeconomic Impacts are two-fold:

1. To compile and review existing socio-economic forecasts for Northeastern Illinois and Northwestern Indiana; to review them for inconsistencies; and to reconcile them, as required.
2. Using existing and forecasted travel times and travel demand, to identify probable areas of socio-economic change, both positive and negative.

Methodology Overview and Description of Study Area

The general methodology employed in this analysis recognizes the fact that accessibility influences locational decisions which, in turn, influence accessibility. Improving access of developable or redevelopable sites increases the development potential of those sites, attracting development that otherwise would have occurred elsewhere within the study area of the transportation model used. For the socio-economic (sketch plan) analysis, it is assumed that the model area includes the counties of Lake and Porter, Indiana; and Cook, Will and Kankakee, Illinois, as a minimum; and that the area of impact/influence will be the entire 16-county, Chicago Combined Statistical Area (CSA). These areas of impact and influence are considerably larger than the Illiana Expressway Feasibility Study Area. Figures 8.16 and 8.17 show the Study Area within the five-county impact area; and the 16-county Chicago CSA, respectively. The Study Area boundary used in this analysis differs slightly from the "official" study area due to the fact that it follows minor civil divisions (MCD).

The impact analysis requires the preparation of baseline socio-economic forecasts reflecting local policies and plans; and, in this case, recognizing and incorporating the major growth that has occurred over the past 7 to 17 years. A forecast to 2030 assumes development without the proposed transportation facility, in this case, the Illiana Expressway. Once travel times and changed accessibilities have been determined by the transportation model, estimates can be made regarding their impacts on development; and areas of change (both positive and negative) can be identified.

The need for reasonable and current socio-economic estimates and forecasts is critical to the development of the Baseline data. This is the subject of the initial analysis, the Socioeconomic Trends and Forecast Update, which is described in Appendix C of this report. The sections which follow describe the Socioeconomic Impacts of the Proposed Illiana Expressway.

Figure 8.16 Illiana Expressway Feasibility Study Area and Affected Environs

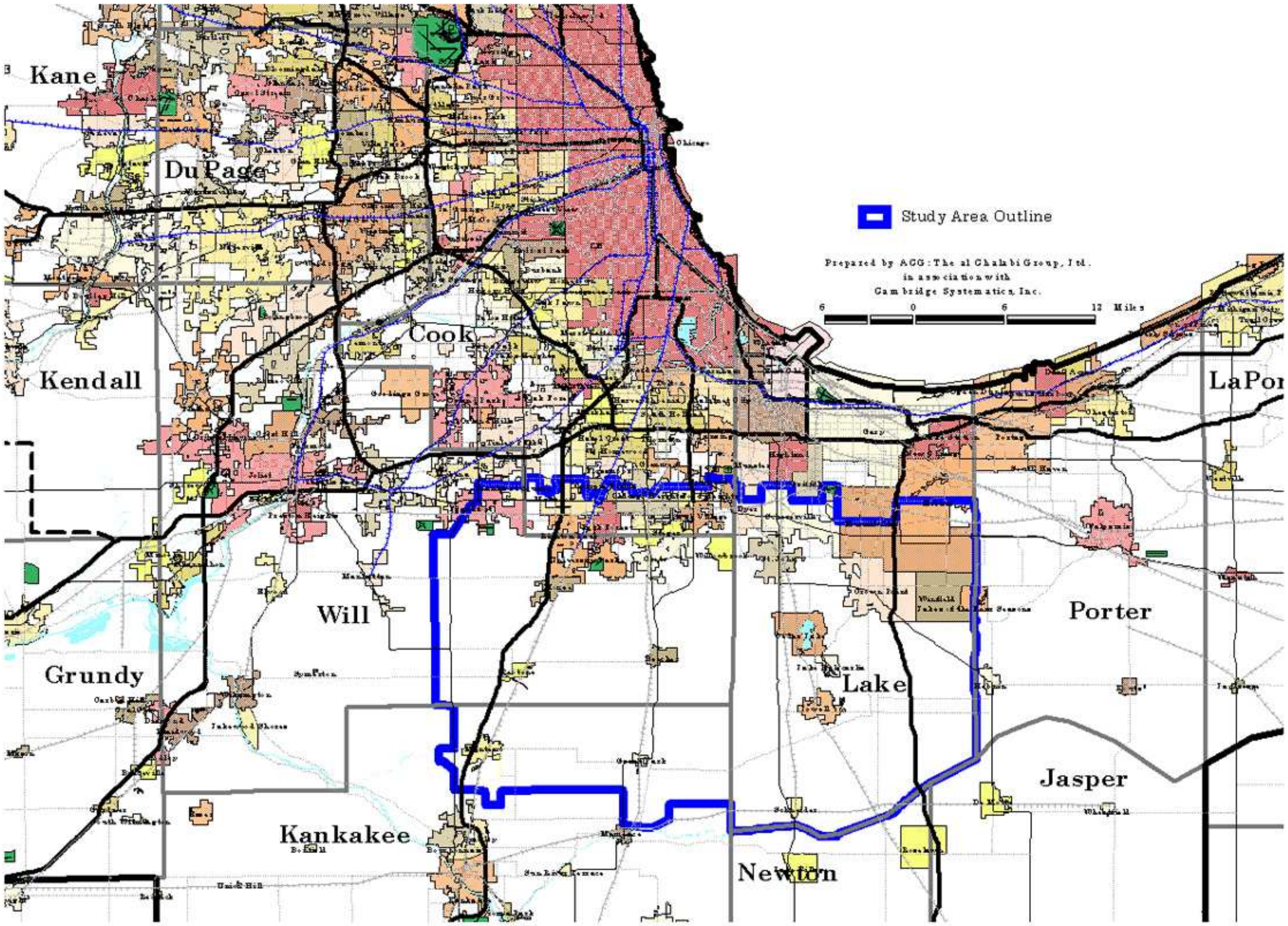
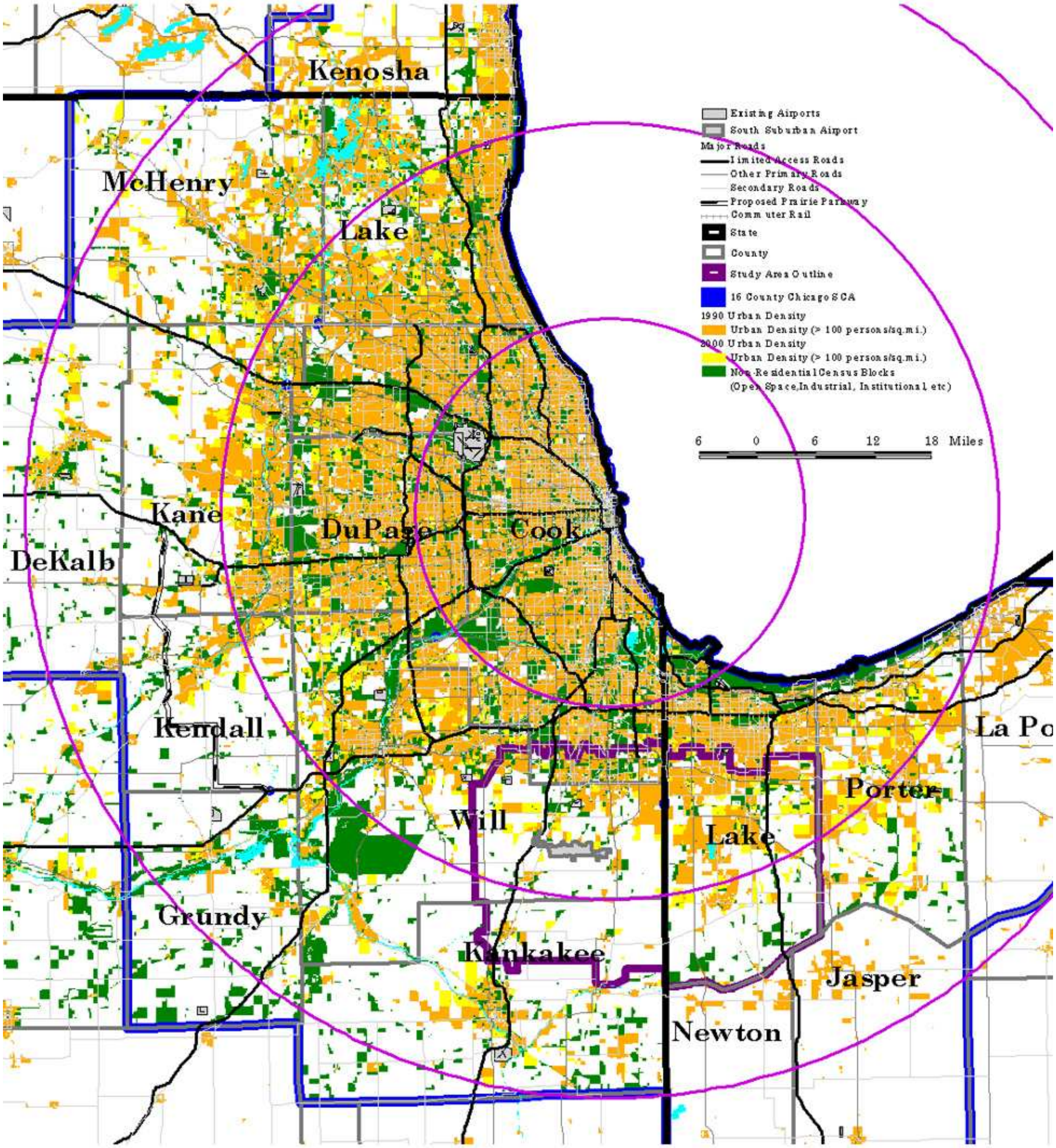


Figure 8.17 Urban Density by Urban Block – Chicago CSA and Adjacent Counties



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November 2008

Socioeconomic Impact Analysis

Sketch Plan Methodology – Overview

The sketch plan analysis recognizes that accessibility influences location decisions, both residential and non-residential (work-related). It is a major factor influencing the distribution of households, population and employment within a metropolitan region. Among the most important of those factors are:

- Availability and cost of developable land;
- Quality of educational facilities;
- Availability and quality of other urban services, e.g.: water, sewers, public safety, parks and open space;
- Quality of the landscape, e.g.: terrain, tree coverage, scenery;
- Community amenities; and
- Accessibility considerations, especially to jobs and labor.

The introduction of new transportation facilities and/or services changes the accessibility of an area and directly impacts household and employment forecasts. In Illinois and other states, and prior to 1995, this interrelationship between transportation facilities and socio-economic/land use forecasts was not integrated into the transportation planning process. A single set of socio-economic/land use forecasts was generated, regardless of the assumed (evaluated) transportation facilities. Advances in the state of the profession, and the court decision invalidating the I-355 extension to I-80 Environmental Impact Statement (EIS), led the Illinois Department of Transportation (IDOT) to require that all future EIS's and major transportation planning efforts recognize the interrelationship between transportation facilities and socio-economic/land use forecasts (i.e. development). Other Midwestern state DOT's – including INDOT, have followed IDOT's lead and adopted similar approaches.

The revised analytical approach requires a baseline socio-economic forecast to 2030: one that assumes a development without the proposed transportation project. Travel time data is prepared for this forecast. This baseline is then compared with travel time data and its consequent influence on development of the proposed transportation alternative or alternatives. The travel times are prepared at the TAZ level for which NIRPC had prepared existing (2007) and baseline socio-economic forecasts (2030). For the Northeastern Illinois portion, 2007 interpolated (2000-2030) CMAP-generated data were used, also at the TAZ level.

Measuring Accessibility

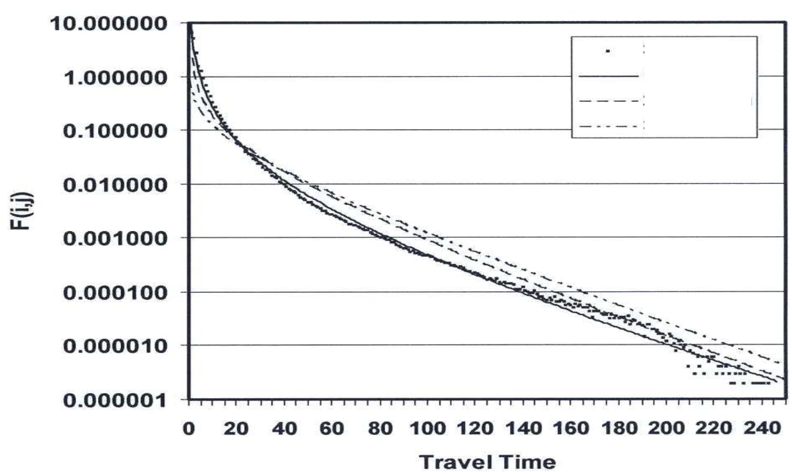
Each Transportation Analysis Zone (TAZ) has an accessibility index which measures the travel impedances between that TAZ and other TAZ's within a region. The introduction of a new transportation facility changes this accessibility. TAZ's which improve their accessibility to jobs or labor force become more attractive for residential or industrial/commercial developments, respectively. The reverse also is true. The first operational issue is to generate indexes for measuring accessibility to jobs and labor force. These generated indexes:

- Have a theoretical basis;
- Can be calibrated using historical data; and
- Can be forecasted using acceptable models.

In selecting jobs, workers put more emphasis (weight) on jobs closer to their residences than on jobs far away. The varying weights are the functions of the inter-zonal impedances in a gravity-type trip distribution model. This function can be calibrated from the three-state Chicago CSA work trip data for 2000 from the 2000 U.S. Census, Journey to Work data.

Figure 8.18, below, shows these weights $F_{i,j}$s as functions of travel time. The sum product of these weights and the travel times from a given origination zone to all destinations generates an accessibility index for the origination zone for a specified transportation network. Changes in the accessibility index for a zone, given two alternative transportation methods, provide the basis for calculating the household or employment forecast differential of these two alternatives.

Figure 8.18 Final Weight – $F_{i,j}$s



Changes in Accessibility

Changes in accessibility were assessed by comparing the accessibility of the build alternative with the accessibility implied in the baseline (no-build) alternative.

For this Sketch Plan Analysis, the Build alternative is assumed to be a hybrid right-of-way of the three alternatives proposed; this is referred to as the Hybrid Build Alternative: Alignment Corridor 2 (AC2). It should be noted that changes in accessibility are functions of the weighted changes in travel times, as described in the previous section. In turn, changes in travel times are related to changes in congestion, which are a function of the socio-economic forecasts.

Maps were prepared to show composite accessibility (weighted trips to and from all destinations in the region) for the base year versus 2030 under both no-build and build conditions. These two figures – Figure 8.19 and Figure 8.20 – are shown on the following pages. These maps indicate that accessibility throughout the region will be decreased under both the Build and No-Build. However, the Build Alternative limits these decreases throughout the study area and improves its accessibility vis-à-vis the entire region.

Figure 8.21 shows the difference between the Build and No-Build Composite Accessibility for 2030. These changes indicate that the study area and the region, as a whole, would experience increased accessibility. The area along the Illiana Expressway: Hybrid Build Alternative (AC2), in Lake and Porter Counties and eastern Will and Kankakee Counties, would see greatly-improved accessibility that would tend to encourage economic activity. Furthermore, this new development and growth along the proposed expressway would not be at the expense of the mature urban areas in northern Lake and Porter Counties, as accessibility to these areas would be improved, as well.

Figure 8.19 Changes in Composite Accessibility Measure Base Year versus 2030 E+C (No-Build)

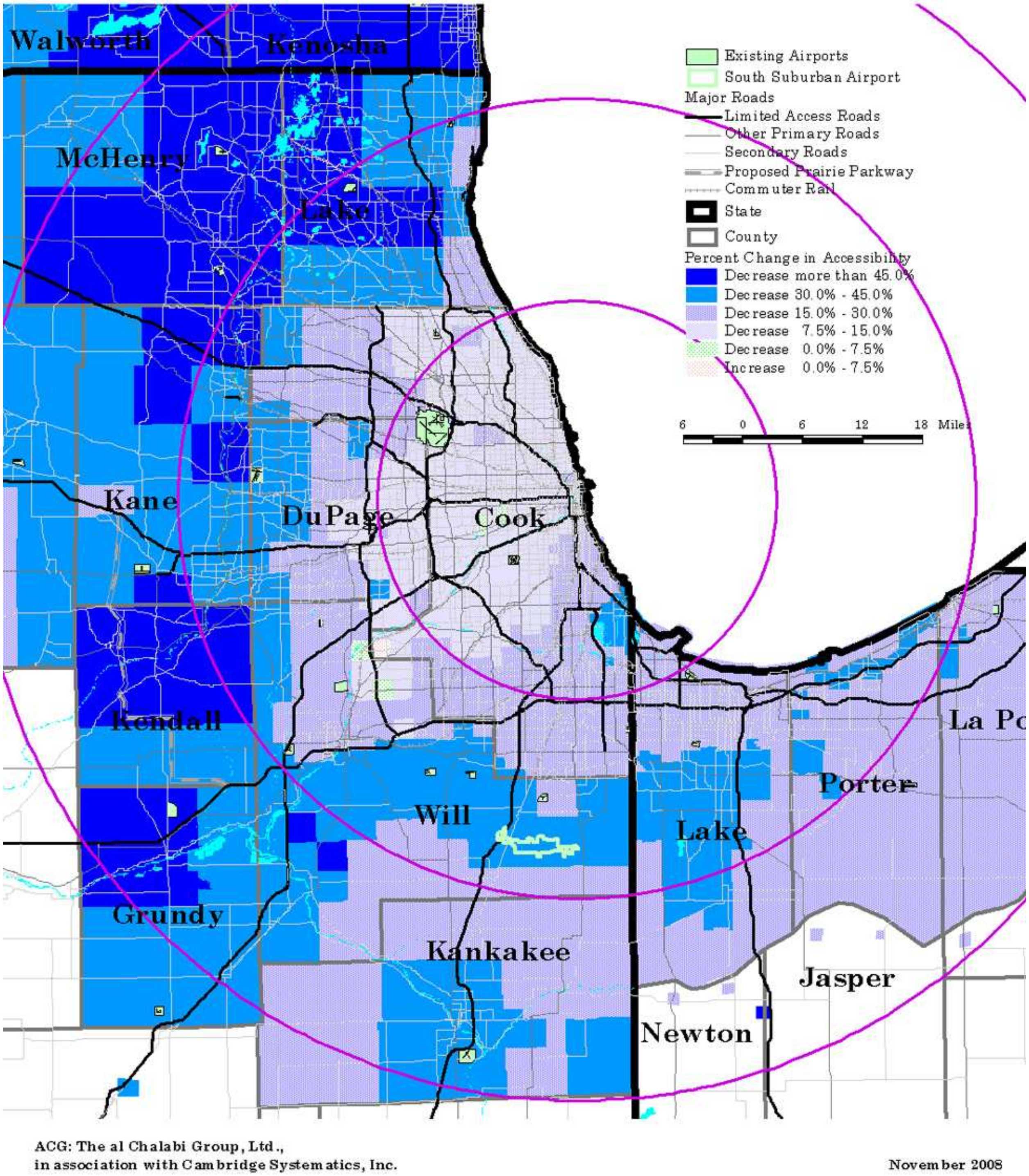


Figure 8.20 Changes in Composite Accessibility Measure 2030 Hybrid Build Alternative (AC2) versus Base Year

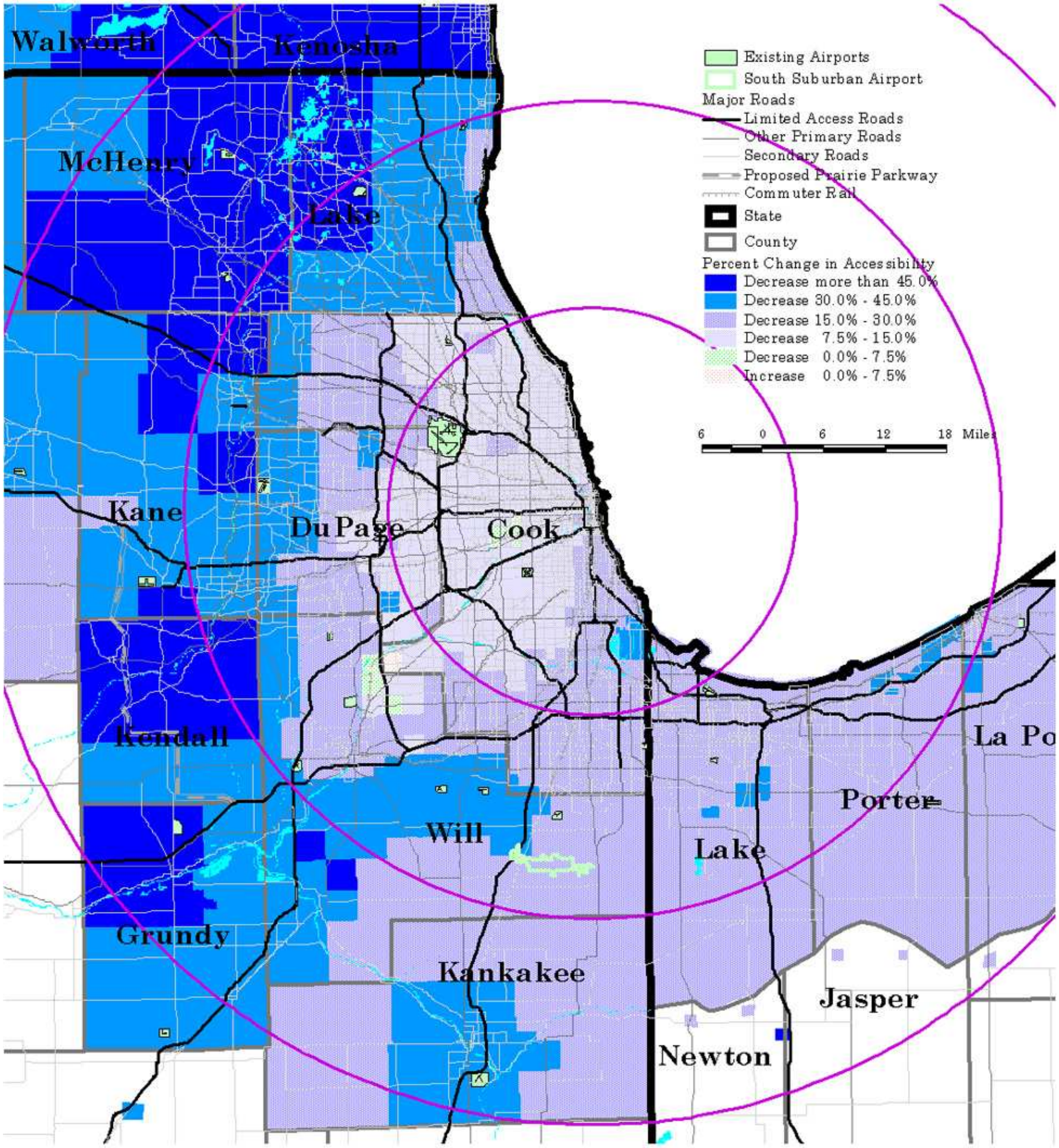


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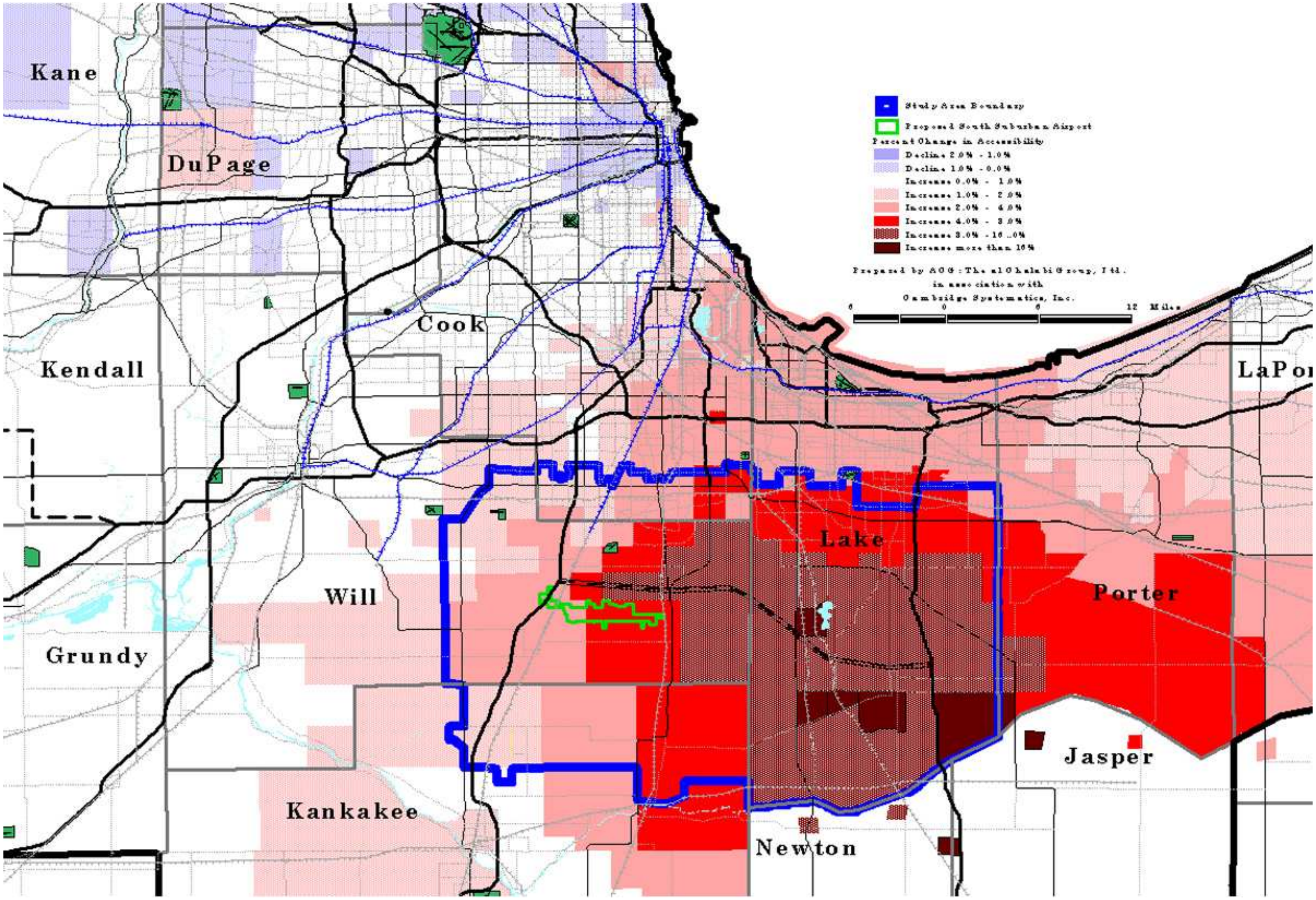
Figure 8.21 Change in Composite Accessibility Measure 2030 Hybrid Build Alternative (AC2) as Compared to 2030 No-Build Network



Travel Time Differentials

Introduction

The previous analysis of change in composite accessibility concentrated on the impacts of the Illiana Hybrid Alternative on entire counties and the region as a whole. Since a major reason for undertaking transportation projects is to improve the trips from home to work or from home to a special use generator, we have examined changes in access, by travel time, to a number of major origins or destinations. Although many zones, were examined, only a few representative ones have been selected for description. These representative zones are grouped into three major categories; these are:

- Northwest Indiana;
- South and Southwest Suburbs; and
- Other major destinations.

Northwest Indiana

The Northwest Indiana group shows 2030 travel time differentials for Build/No-Build for the following destinations:

- Gary-Chicago Airport;
- Merrillville (Star Plaza);
- Crown Point CBD;
- Intersection of I-65 and IN-2; and
- Valparaiso Industrial Park.

All these destinations show substantially increased accessibility to/from the entire Illinois/Indiana study region. This improved accessibility enhances the desirability of intermodal facilities and other economic development in the region. Each of these areas is described, briefly, as follows.

a. Gary Chicago Airport

Access to Gary Chicago Airport is improved to all of the extended Study Area. There are significant improvements to Kane, DuPage, Kendall, Grundy, and Kankakee Counties; almost all of Will County; east and north Cook County; and the southern portions of Lake and Porter Counties. Improvements are in the range of 1.5 to 4.5 minutes to all but to the area immediately surrounding the airport. See Figure 8.22.

b. Merrillville (Star Plaza)

Access to Merrillville (Star Plaza at I-65 and US30) is improved to all of the Illinois portion of the extended Study Area, with major improvements (4.5 to 13.5 minutes) in Grundy, Will, Kankakee, and Kendall Counties. There are modest improvements in Lake and Porter Counties and portions of LaPorte County. See Figure 8.23.

c. Crown Point CBD

Access to Crown Point is improved for the entire extended Study Area with the exception of some small areas of decline in central and northwest Chicago. The greatest improvements are seen in Will, Grundy, and Kankakee Counties (at 4.5 to 13.5 minutes). See Figure 8.24.

d. TAZ 1109 (I-65 and IN-2)

Access to and from this major interchange is improved, dramatically, to all of the Illinois portion of the extended Study Area. Improvements in excess of 13.5 minutes are extended through a wide band from Central Will County, into Cook, DuPage, Kane, McHenry, and Will Counties. Major improvements are seen in eastern Cook County and Kane, Kendall, Grundy, and Will Counties. A small portion of south Porter and LaPorte see minor travel time increases. See Figure 8.25.

e. Valparaiso Industrial Park

Access to Valparaiso Industrial Park is improved for all the extended Study Area west of the TAZ analyzed. Access to the east remains unchanged. Access is most improved to Will, Grundy, and west Kankakee Counties (4.5 to 13.5 minutes). See Figure 8.26.

Figure 8.22 Travel Time Differentials to Gary Chicago Airport 2030 Hybrid Build Alternative (AC2) as Compared to 2030 No-Build Network

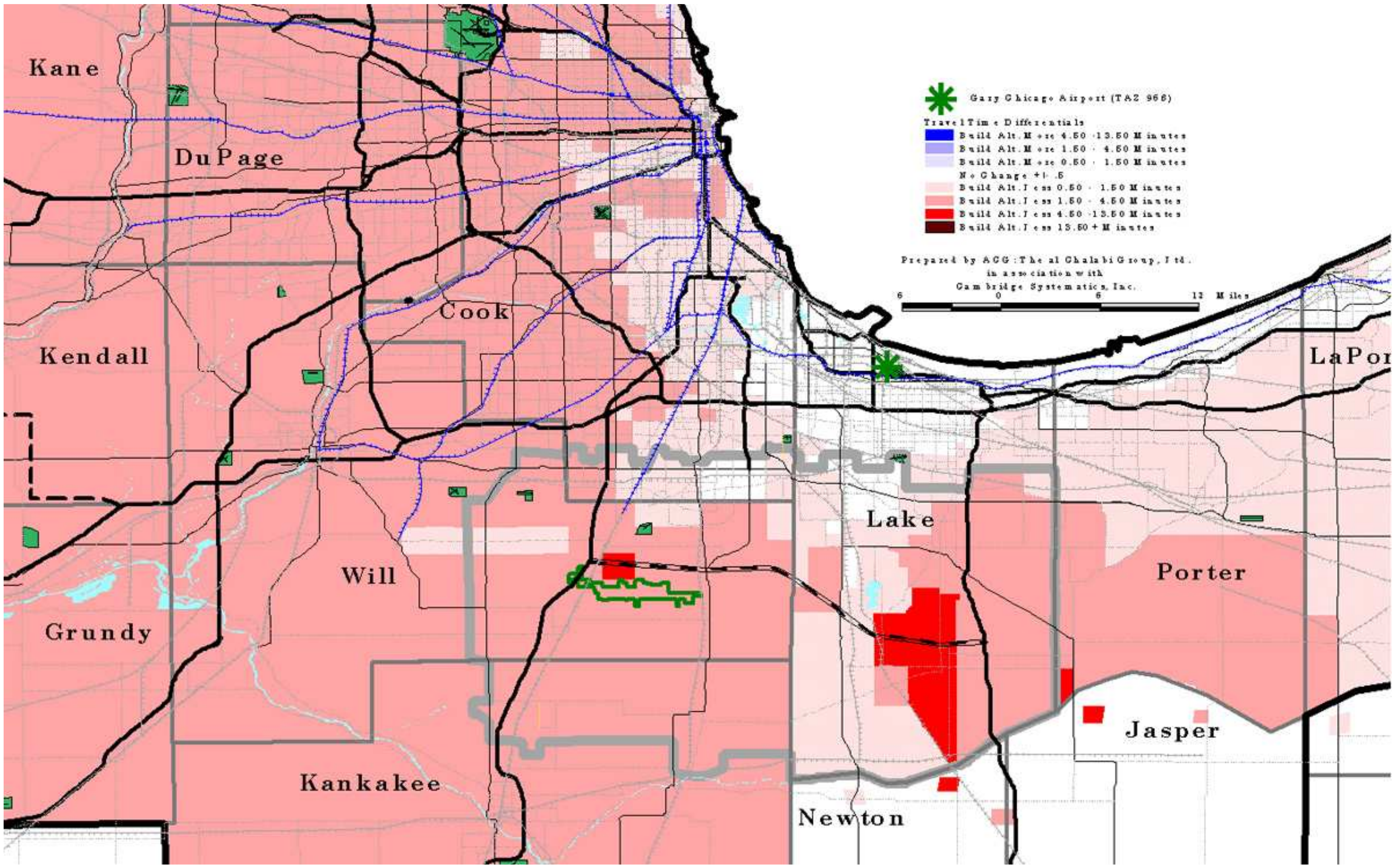


Figure 8.23 Travel Time Differentials to Merrillville 2030 Hybrid Build Alternative (AC2) as Compared to 2030 No-Build Network

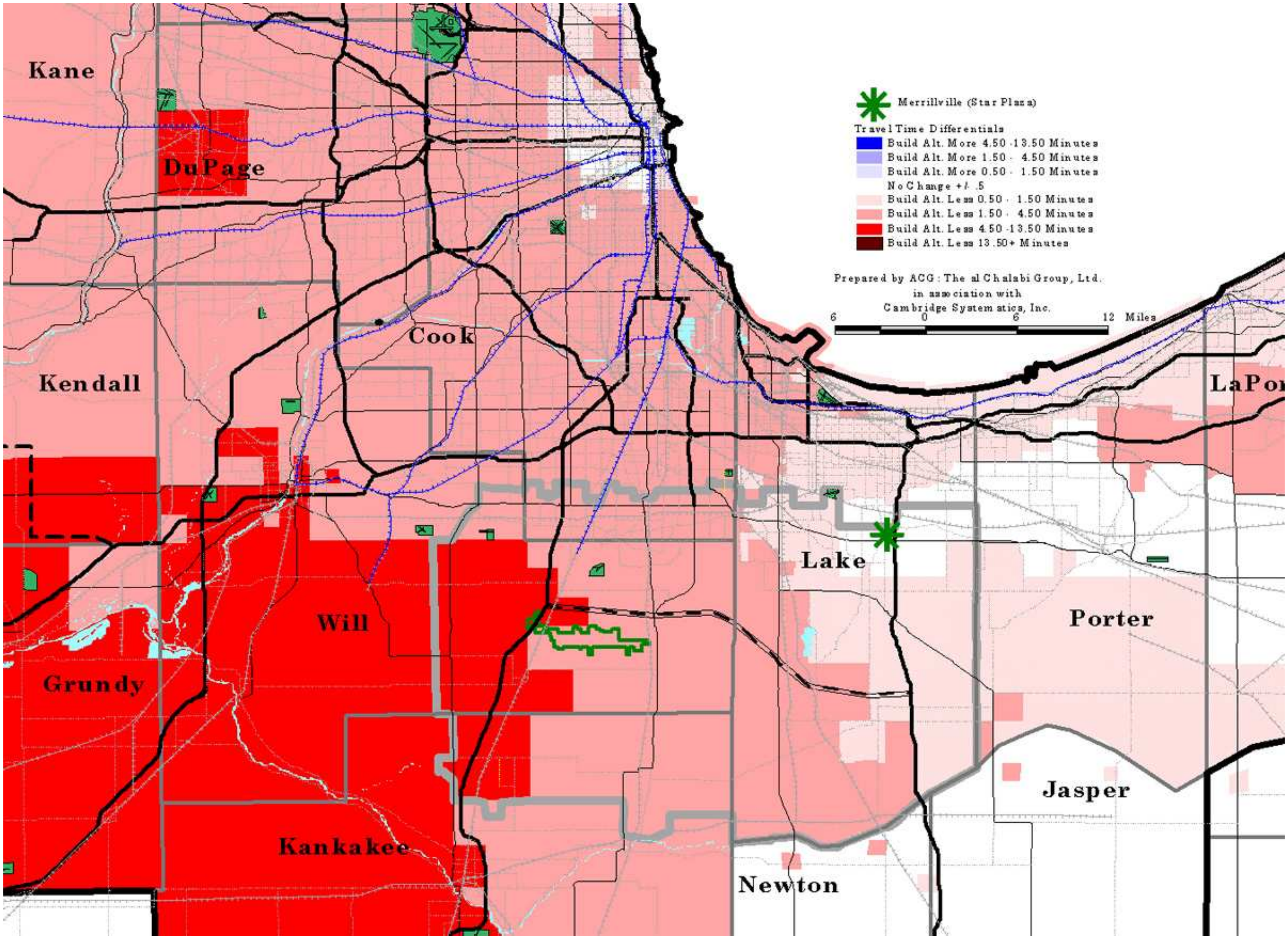


Figure 8.24 Travel Time Differentials to Crown Point (CBD) 2030 Hybrid Alternative (AC2) as Compared to 2030 No-Build Network

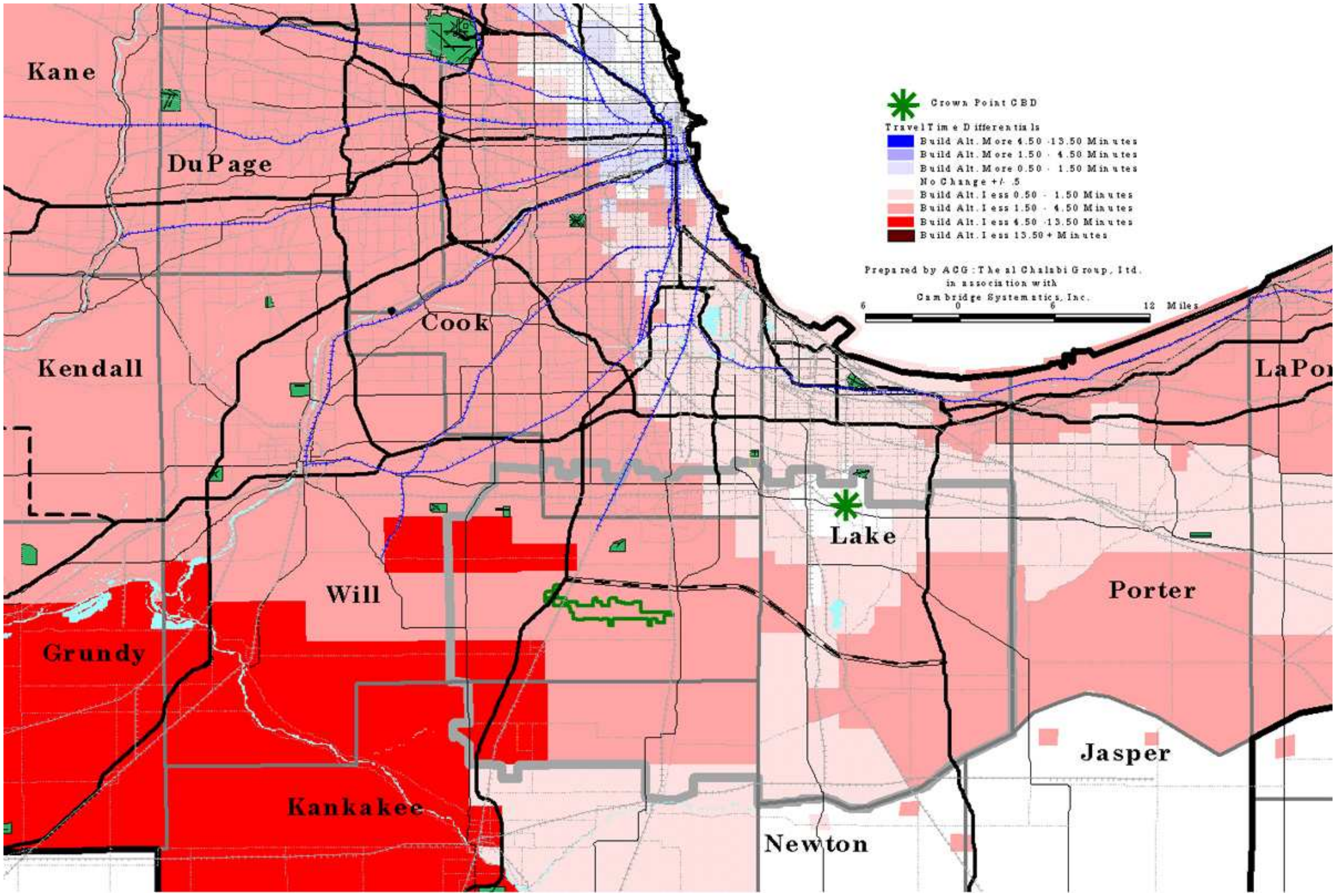


Figure 8.25 Travel Time Differentials to TAZ 1109 (I-65/IN 2) 2030 Hybrid Build Alternative (AC2) as Compared to 2030 No-Build Network

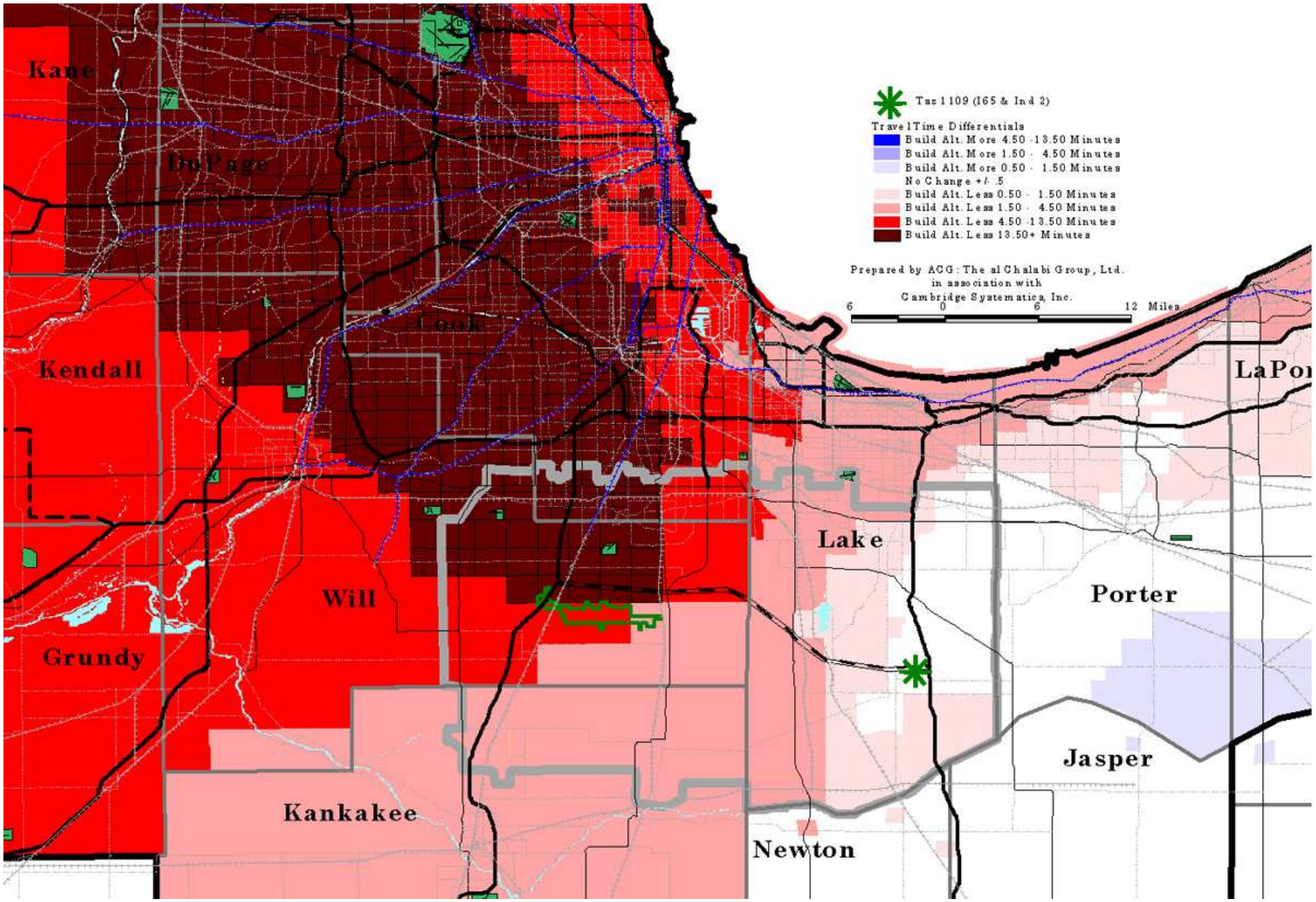
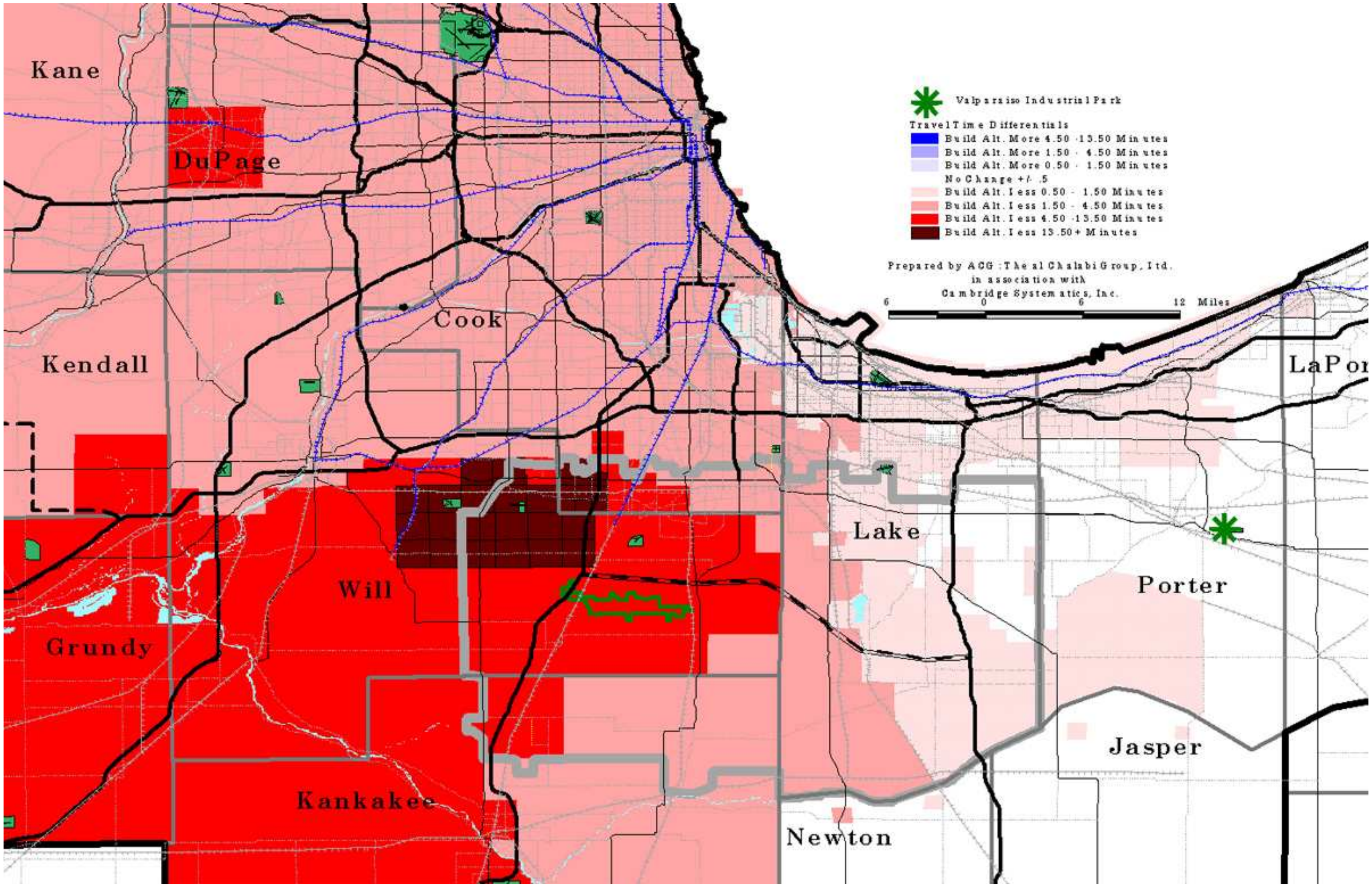


Figure 8.26 Travel Time Differentials to Valparaiso Industrial Park 2030 Hybrid Build Alternative (AC2) as Compared to 2030 No-Build Network



South and Southwest Suburbs

The South and Southwest Suburbs group shows 2030 travel time differentials for Build/No-Build for the following destinations:

- Proposed South Suburban Airport;
- Matteson (I-57 and U.S. 30);
- Sauk Village;
- Joliet City Center;
- Intersection of I-80 and I-355;
- Elwood; and
- Kankakee City Center.

All these examples show increased access to/from Indiana and the Illinois border area, as a minimum. As a general observation, travel times to the Chicago CBD, areas north and along the Dan Ryan are increased, somewhat, due to increased traffic on I-57. Each of the above-cited areas is described, briefly, below.

a. Proposed South Suburban Airport

Travel times to and from the eastern half of Lake and all of Porter and LaPorte Counties are substantially reduced (4.5 to 13.5 minutes). Travel times to west Lake and border edges of Will and Cook Counties are moderately improved. Travel times to much of Cook and DuPage Counties are increased, slightly, due to increased traffic on I-57. See Figure 8.27.

b. Matteson (I-57 and US 30)

Access to the southern halves of Lake, Porter, and LaPorte Counties is greatly improved; travel time is reduced by over 13.5 minutes. The northern halves of these counties, as well as the Illinois border area, improve at rates of 1.5 to 13.5 minutes. Areas to the west of Matteson are unchanged; but areas to the south and north are degraded, slightly, due to traffic on I-57 and to the west, due to increased traffic on I-80 as traffic connects between the end of the Illiana and the beginning of the Prairie Parkway; see Figure 8.28.

c. Sauk Village

Travel times to/from Sauk Village are greatly improved to most all of the region. It is greatly improved to southern Lake, Porter, and LaPorte Counties. Access to Kankakee, southern Will and Grundy Counties is also substantially improved. The entire study area shows travel time reductions – with the exception of minor travel time increases along the Bishop Ford and the Dan Ryan and more substantial increases within the Central Area and North Side of Chicago. The greater region-wide accessibility is an advantage to the current trucking and potential intermodal facilities being developed in Sauk Village; but, access to

Chicago remains crucial to the Sauk Village and surrounding work force. See Exhibit 8.29.

d. Joliet City Center

Travel time improvements are accomplished to/from all of Lake, Porter and LaPorte Counties and the eastern edge of the Illinois border. Improvements to travel times within Illinois, beyond the border, are limited. See Figure 8.30.

e. Interchange of I-80 and I-355

Accessibility to/from this key interchange is greatly improved for all of Lake, Porter, and LaPorte Counties and the eastern Illinois border. Impacts throughout the rest of Illinois are limited. See Figure 8.31.

f. Elwood

Travel times to/from Elwood (site of the Logistics Park Chicago Intermodal Facility) are greatly improved in all of Lake, Porter and LaPorte Counties and along the eastern edge of Illinois. All other impacts in Illinois are limited. See Figure 8.32.

g. Kankakee

Travel times to/from Kankakee are greatly improved in all of Lake, Porter, and LaPorte Counties, especially, in their centers. Access in the eastern edge of Illinois is also improved. However, access to all of Cook and DuPage Counties and beyond is degraded (by 1.5 to 4.5 minutes). See Figure 8.33.

Figure 8.27 Travel Time Differentials to Proposed South Suburban Airport 2030 Hybrid Build Alternative (AC2) as Compared to 2030 No-Build Network

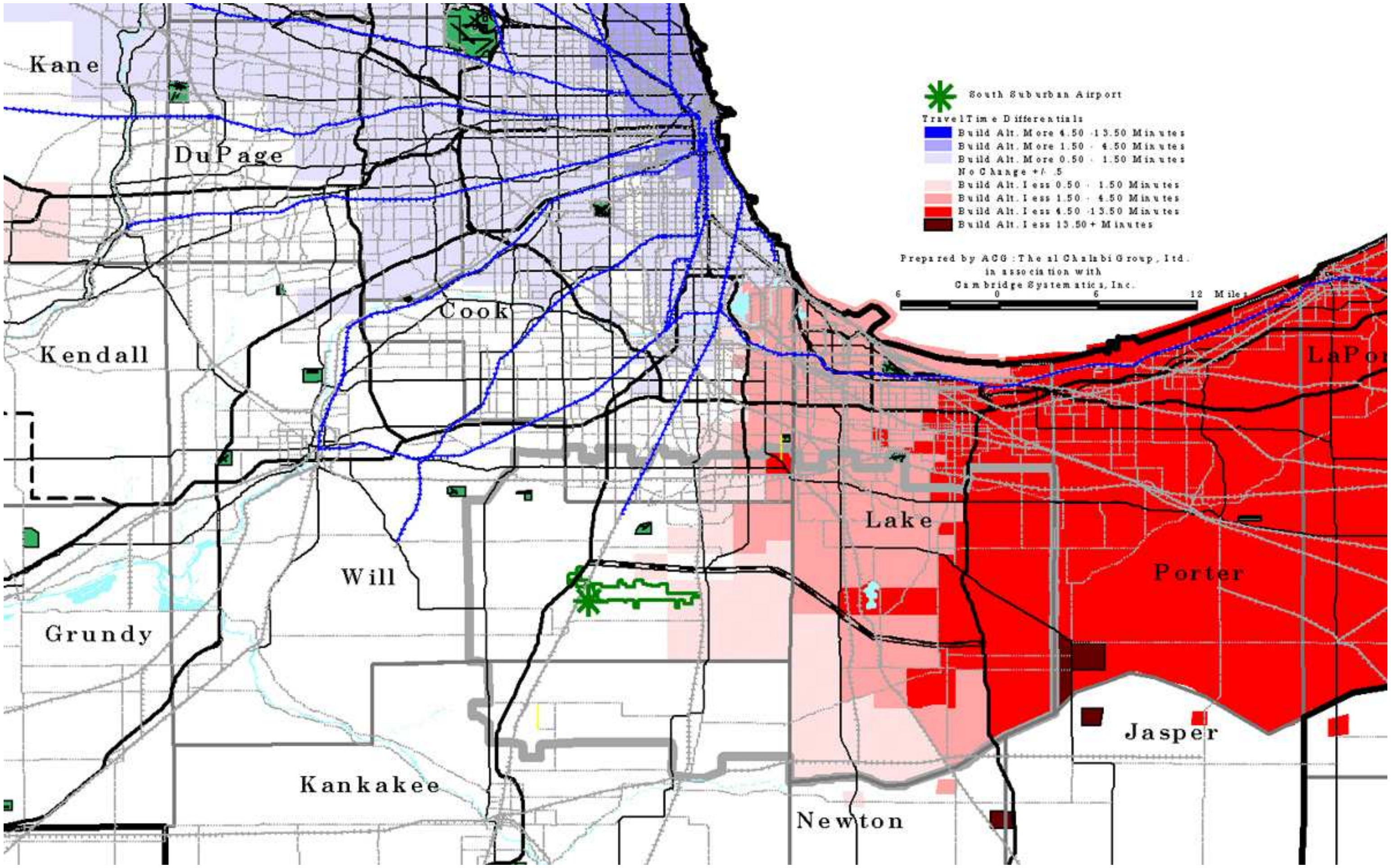


Figure 8.28 Travel Time Differentials to matteson (I-57/US 30) 2030 Hybrid Build Alternative (AC2) as Compared to 2030 No-Build Network

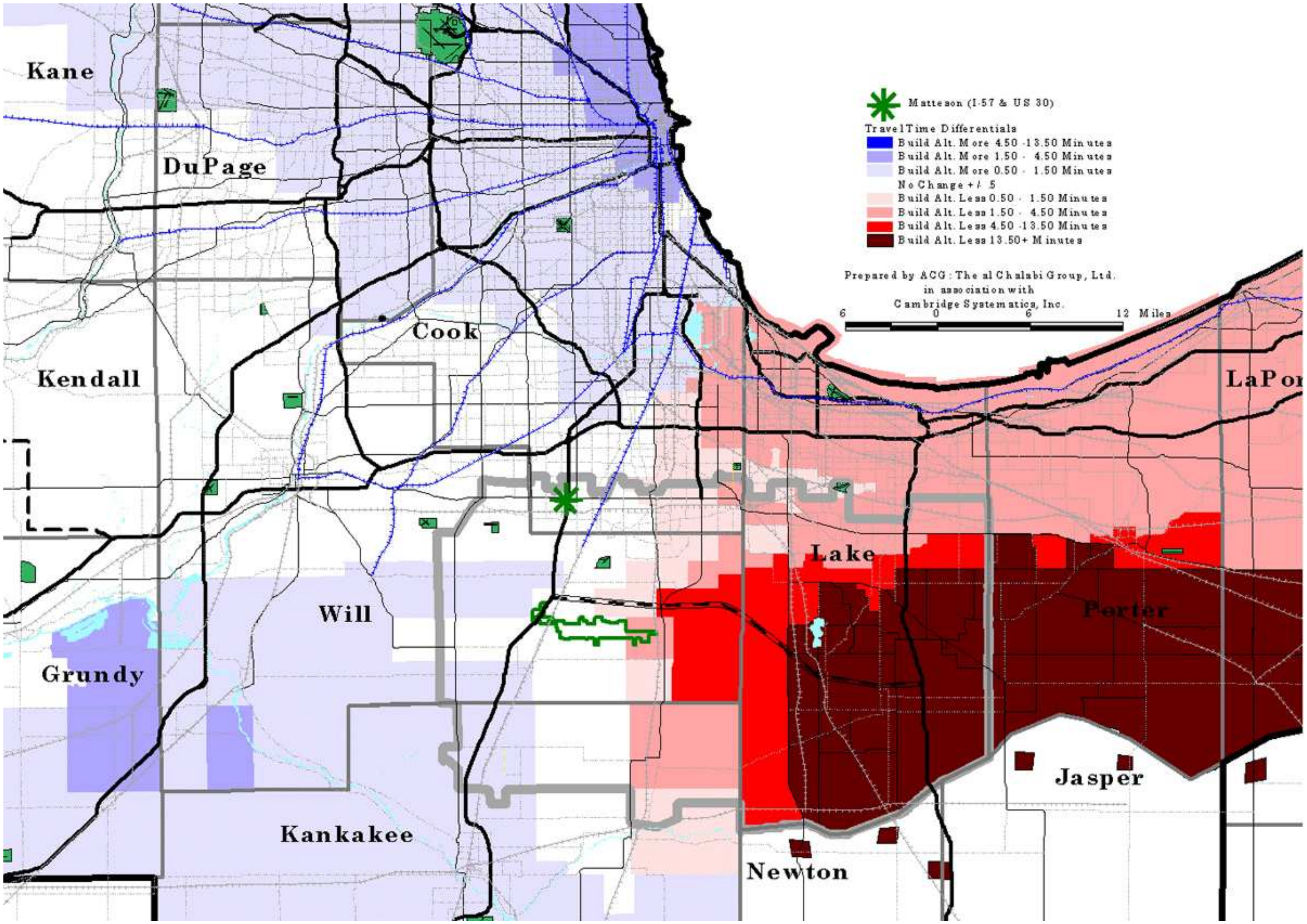


Figure 8.29 Travel Time Differentials to Sauk Village 2030 Hybrid Build Alternative (AC2) as Compared to 2030 No-Build Network

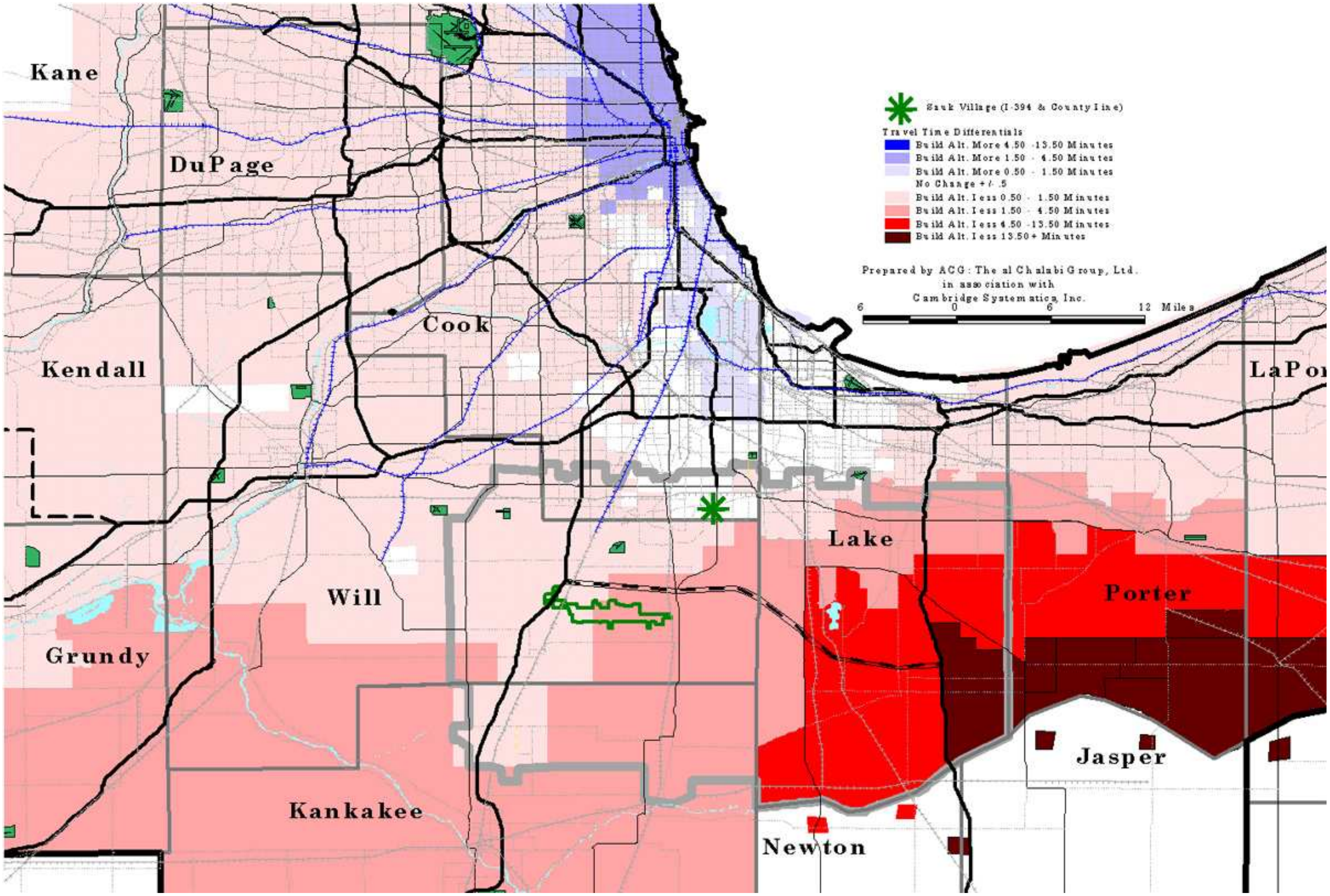


Figure 8.30 Travel Time Differentials to Joliet CBD 2030 Hybrid Build Alternative (AC2) as Compared to 2030 No-Build Network

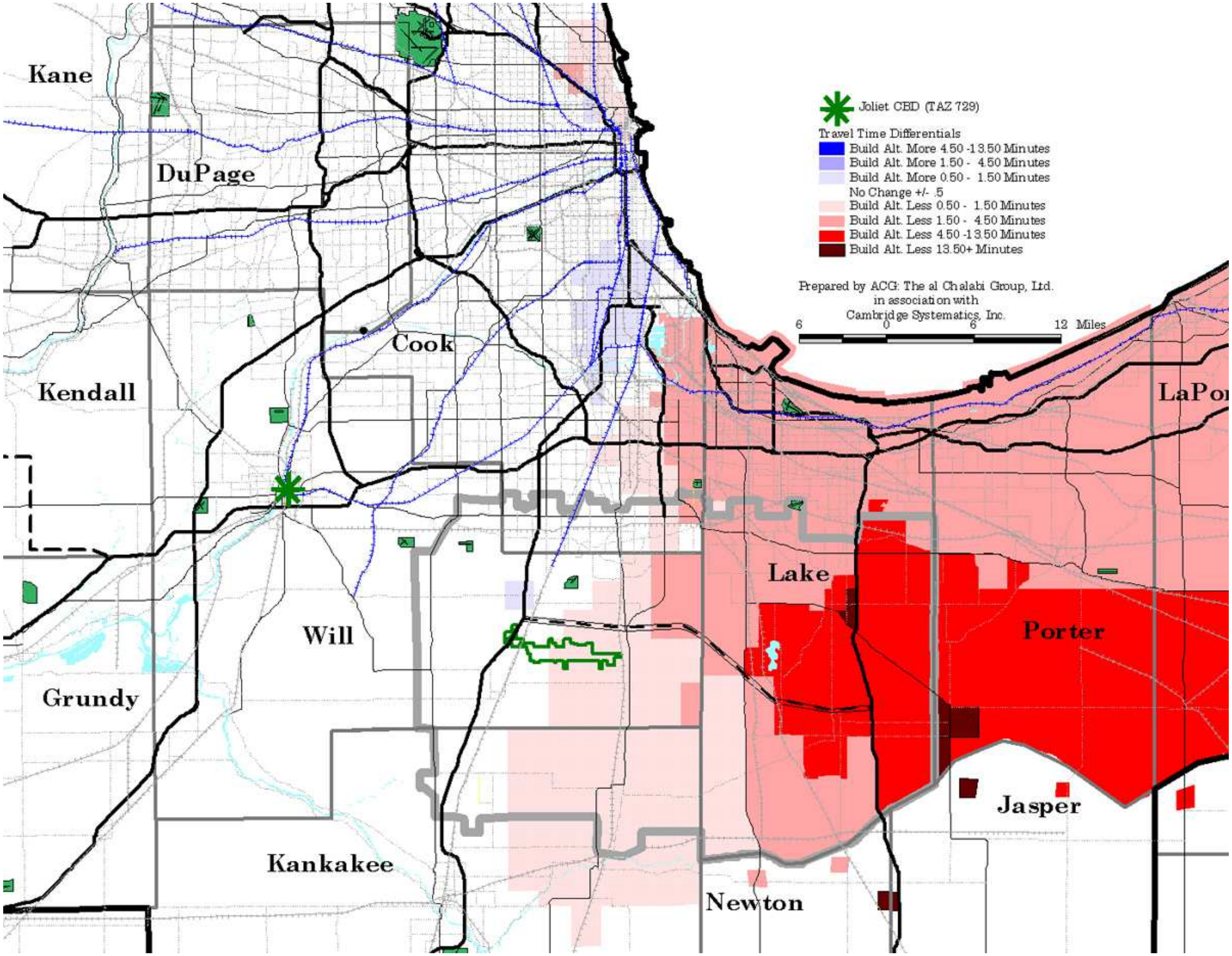


Figure 8.31 Travel Time Differentials to I-80/I-355 (TAZ 774) 2030 Hybrid Build Alternative (AC2) as Compared to 2030 No-Build Network

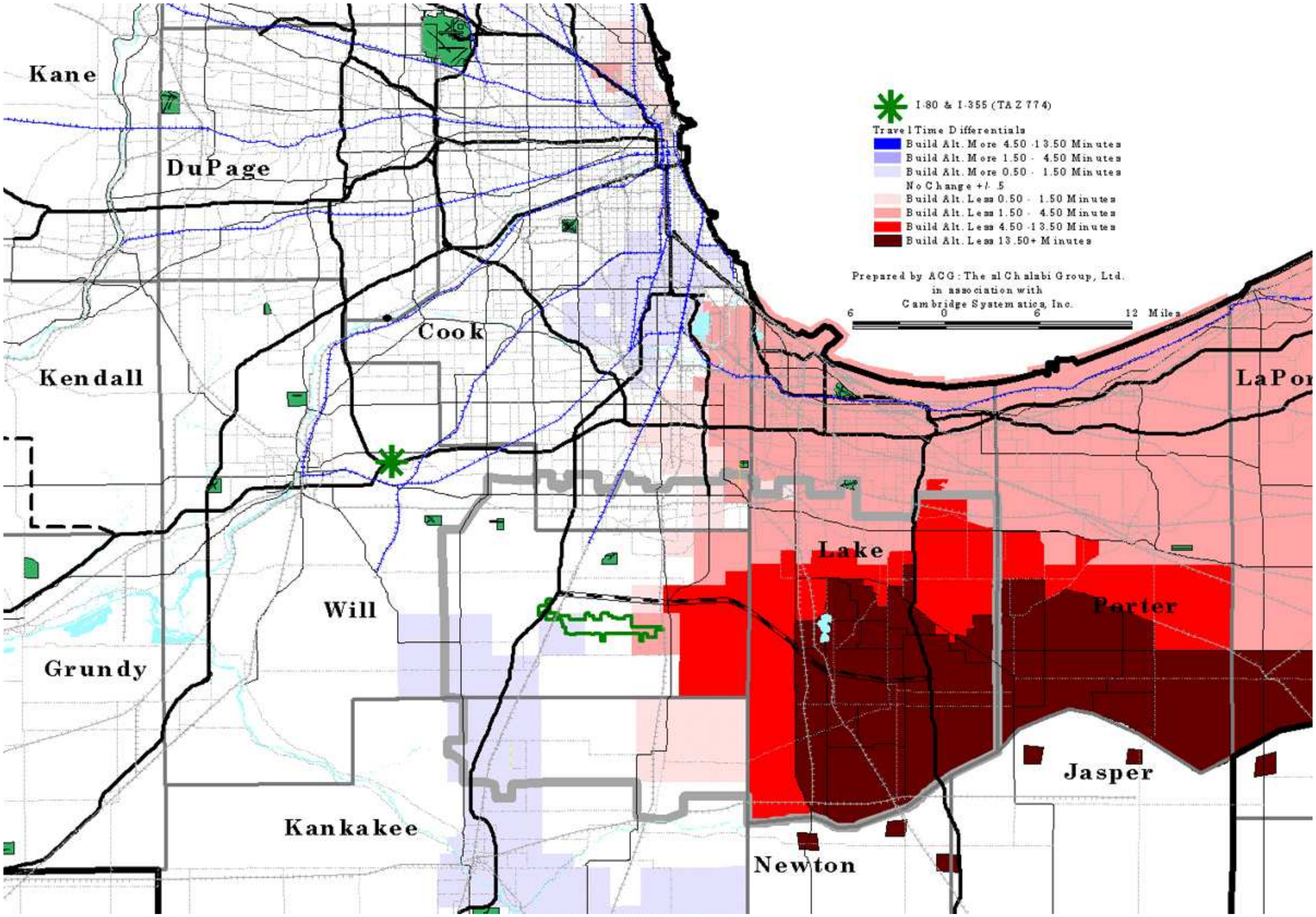


Figure 8.32 Travel Time Differentials to Elwood 2030 Hybrid Build Alternative (AC2) as Compared to 2030 No-Build Network

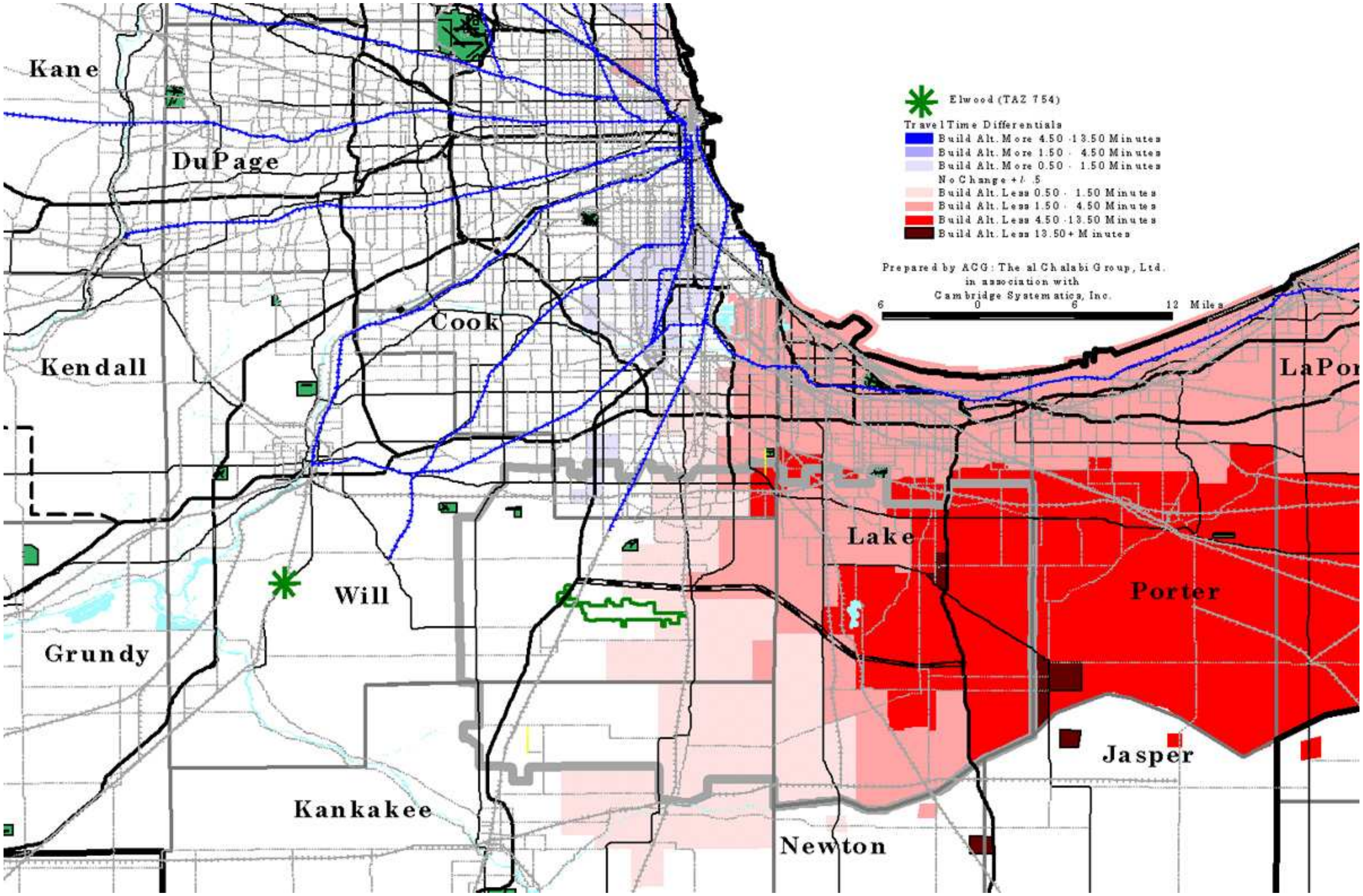
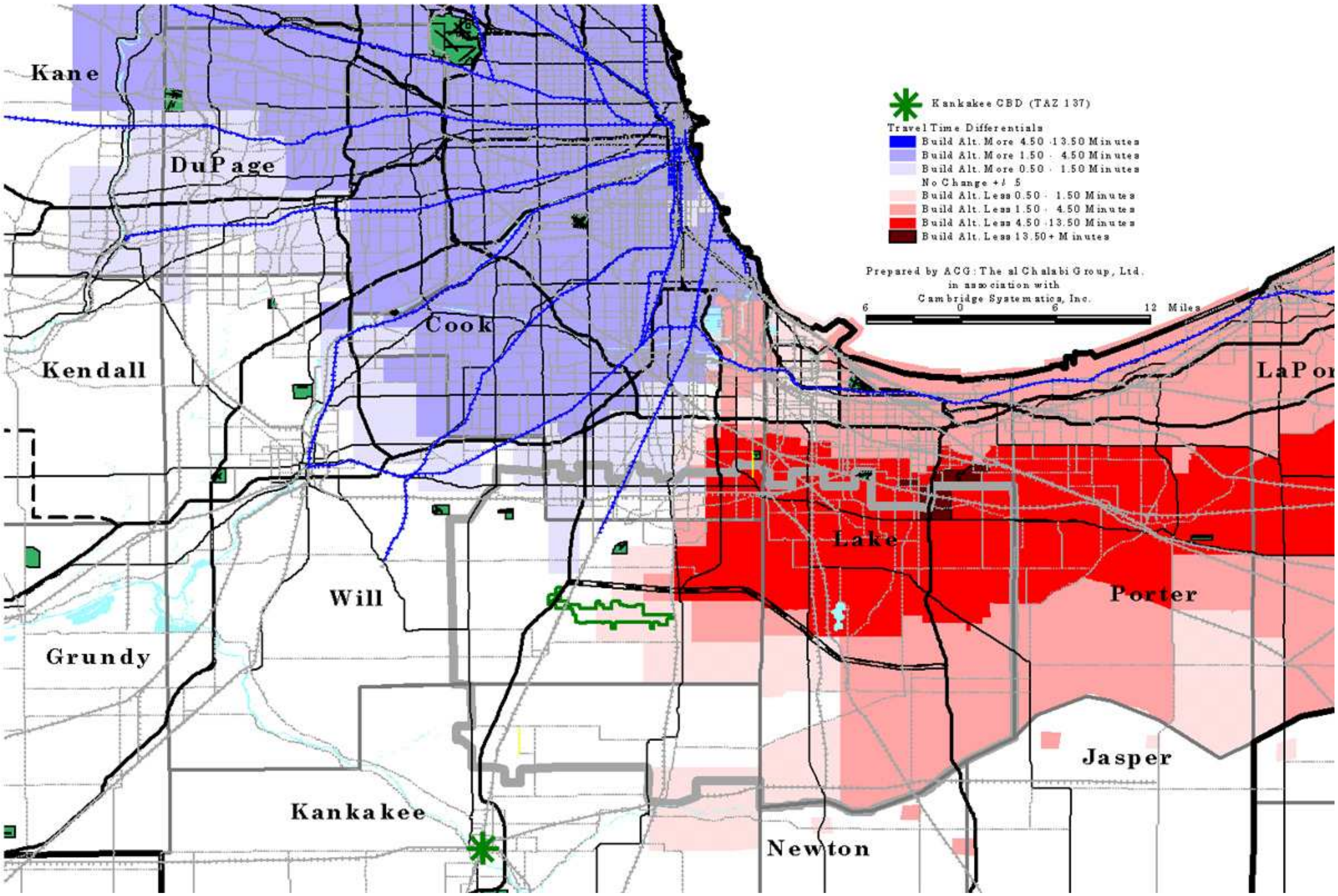


Figure 8.33 Travel Time Differentials to Kankakee City Center 2030 Hybrid Build Alternative (AC2) as Compared to 2030 No-Build Network



Other Major Destinations

The group of other major destinations shows 2030 travel time differentials for Build/No-Build for the following destinations:

- Millennium Park Station (Chicago CBD);
- O'Hare Airport;
- Midway Airport;
- Oakbrook Center; and
- Naperville/I-88 High Tech Corridor.

Again, improved access to/from Northwest Indiana and the Illinois east border area is clearly evident; but portions of Kankakee and Will County have deteriorated travel times to these destinations, presumably, due to increased traffic on I-57. Each of these destinations is described, briefly, as follows:

a. Millennium Park Station (Chicago CBD)

Travel times to/from all of Lake, Porter, and LaPorte Counties are improved, with greater improvements in the southern half of the counties. Travel times also are improved in South Cook County and in the eastern-most portions of Will and Kankakee Counties. Central Will and Kankakee Counties show deteriorated travel times as a result of increased traffic on I-57. Access to the Chicago CBD is a critical trip to work need for large numbers of residents of the South Suburbs and Northwest Indiana. See Figure 8.34.

b. O'Hare International Airport

Travel time changes to O'Hare are similar to the changes to Millennium Park, previously described, but without the improvements in South Cook County. Access to Indiana is greatly improved; travel times along I-57 are increased south of I-80. See Figure 8.35.

c. Midway Airport

Travel time changes to Midway are almost exactly the same as those to O'Hare, previously described. Access to Indiana is greatly improved; travel times along I-57 are increased south of I-80. Access to both O'Hare and Midway is necessary to promote economic development. See Figure 8.36.

d. Oakbrook Center

Due to its similar location on the regional highway network, access changes to Oakbrook Center are almost identical to those of O'Hare Airport. See Figure 8.37.

e. Naperville/I-88 High Tech Corridor

Travel time changes are the same as those of Oakbrook Center; the exception is slight improvements in access to central-west DuPage County, in this instance. See Figure 8.38.

Figure 8.34 Travel Time Differentials to Millennium Park Station 2030 Hybrid Build Alternative (AC2) as Compared to 2030 No-Build Network

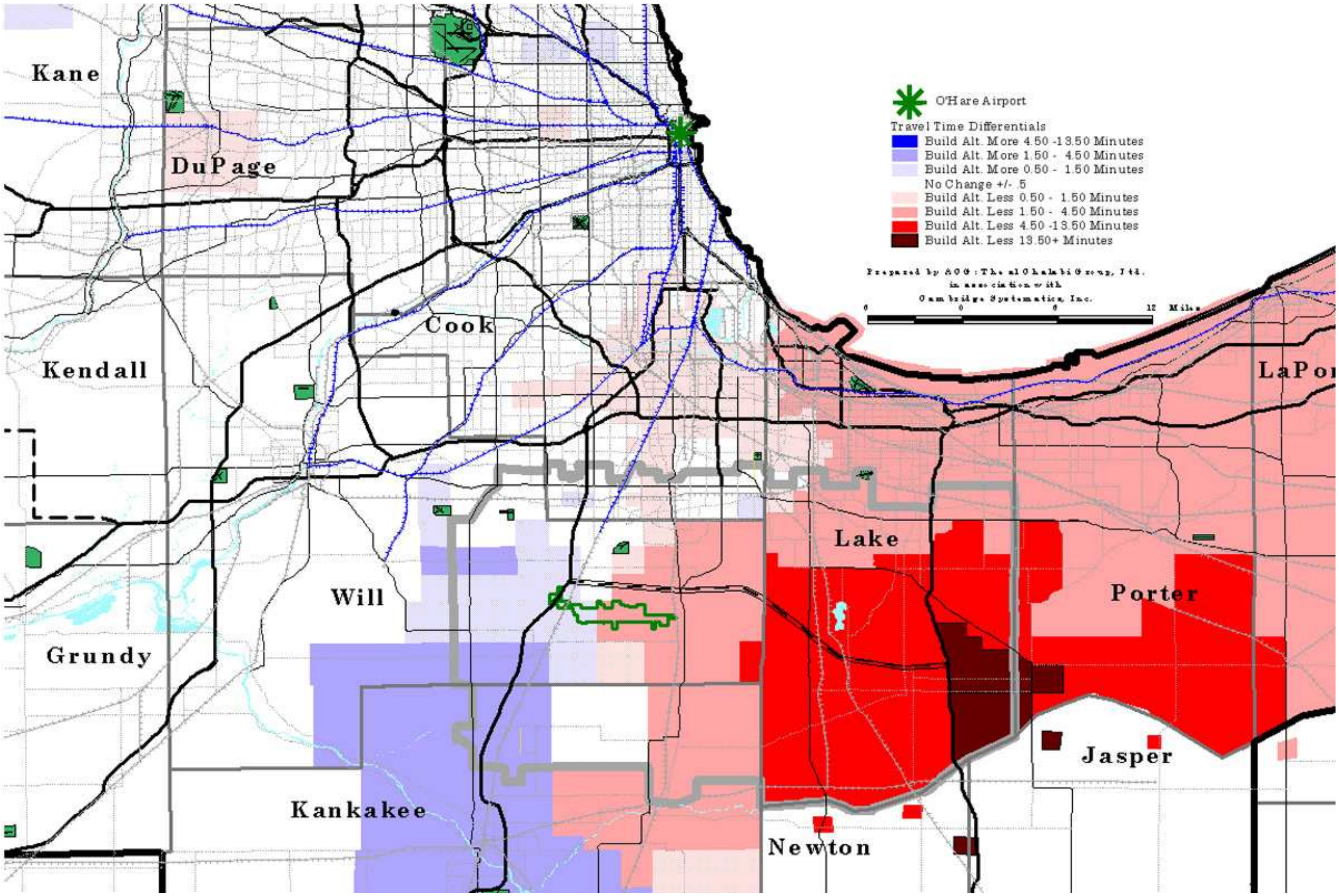


Figure 8.35 Travel Time Differentials to O'Hare Airport 2030 Hybrid Build Alternative (AC2) as Compared to 2030 No-Build Network

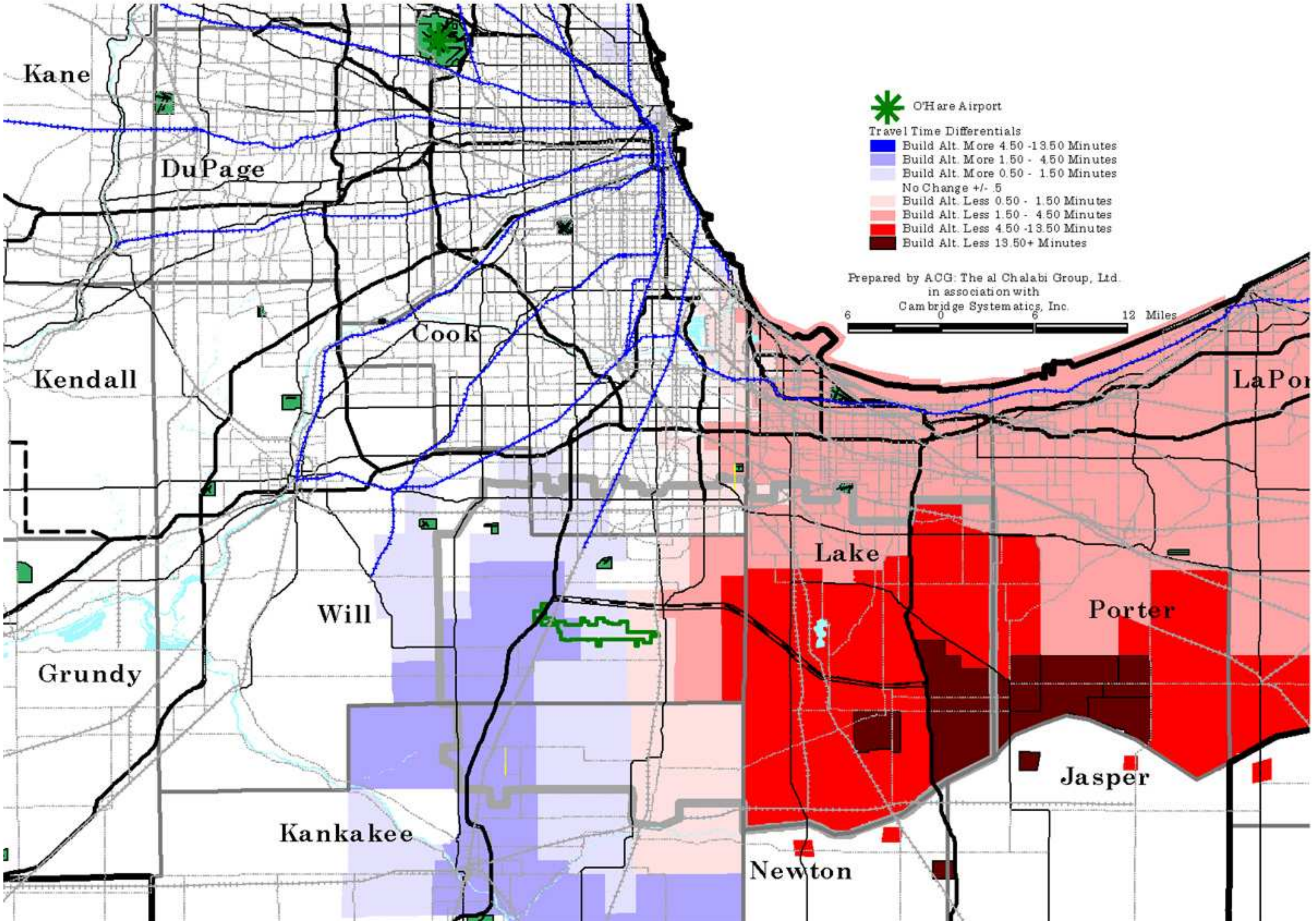


Figure 8.36 Travel Time Differentials to Midway Airport 2030 Hybrid Build Alternative (AC2) as Compared to 2030 No-Build Network

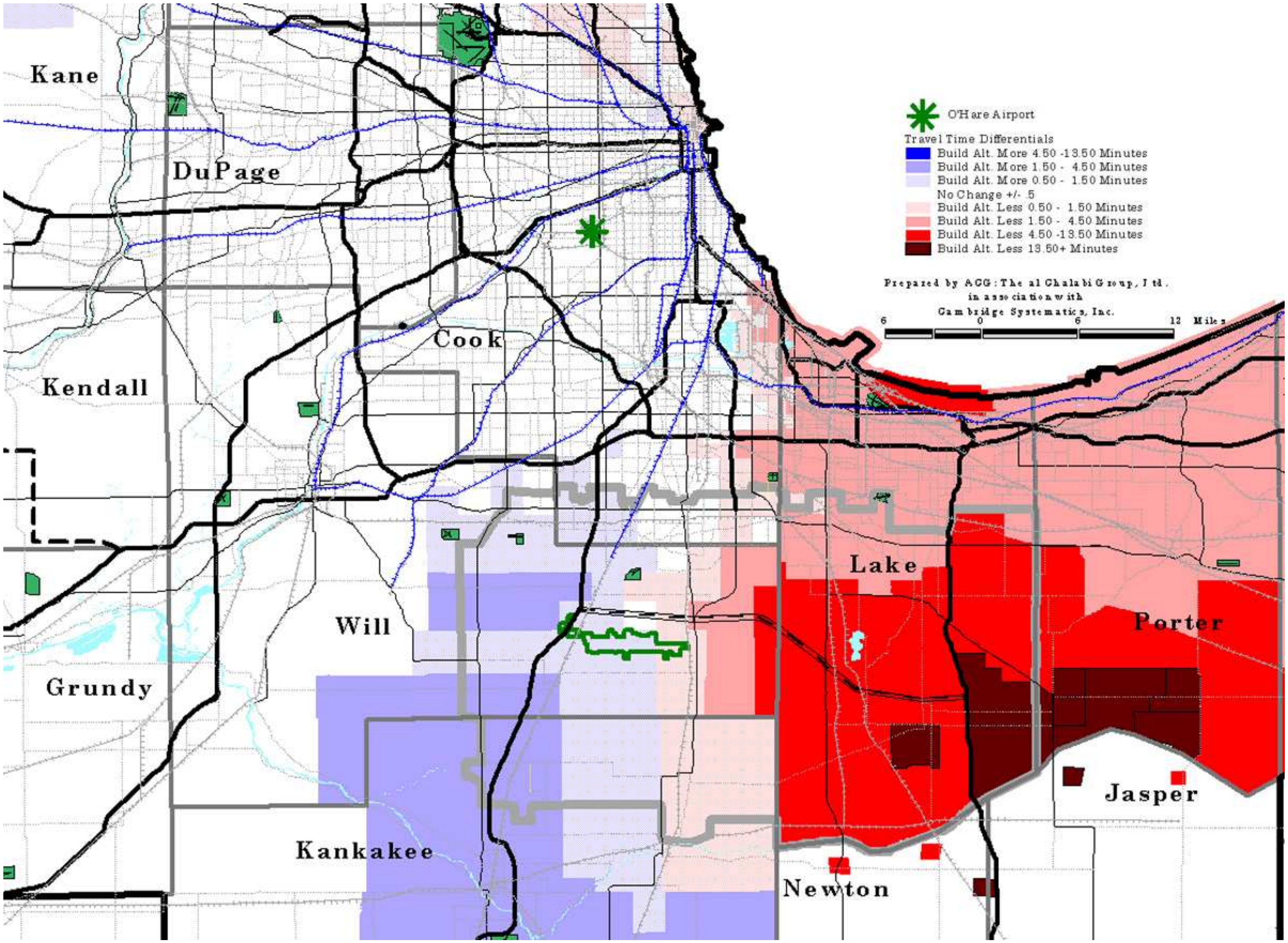


Figure 8.37 Travel Time Differentials to Oakbrook Center 2030 Hybrid Build Alternative (AC2) as Compared to 2030 No-Build Network

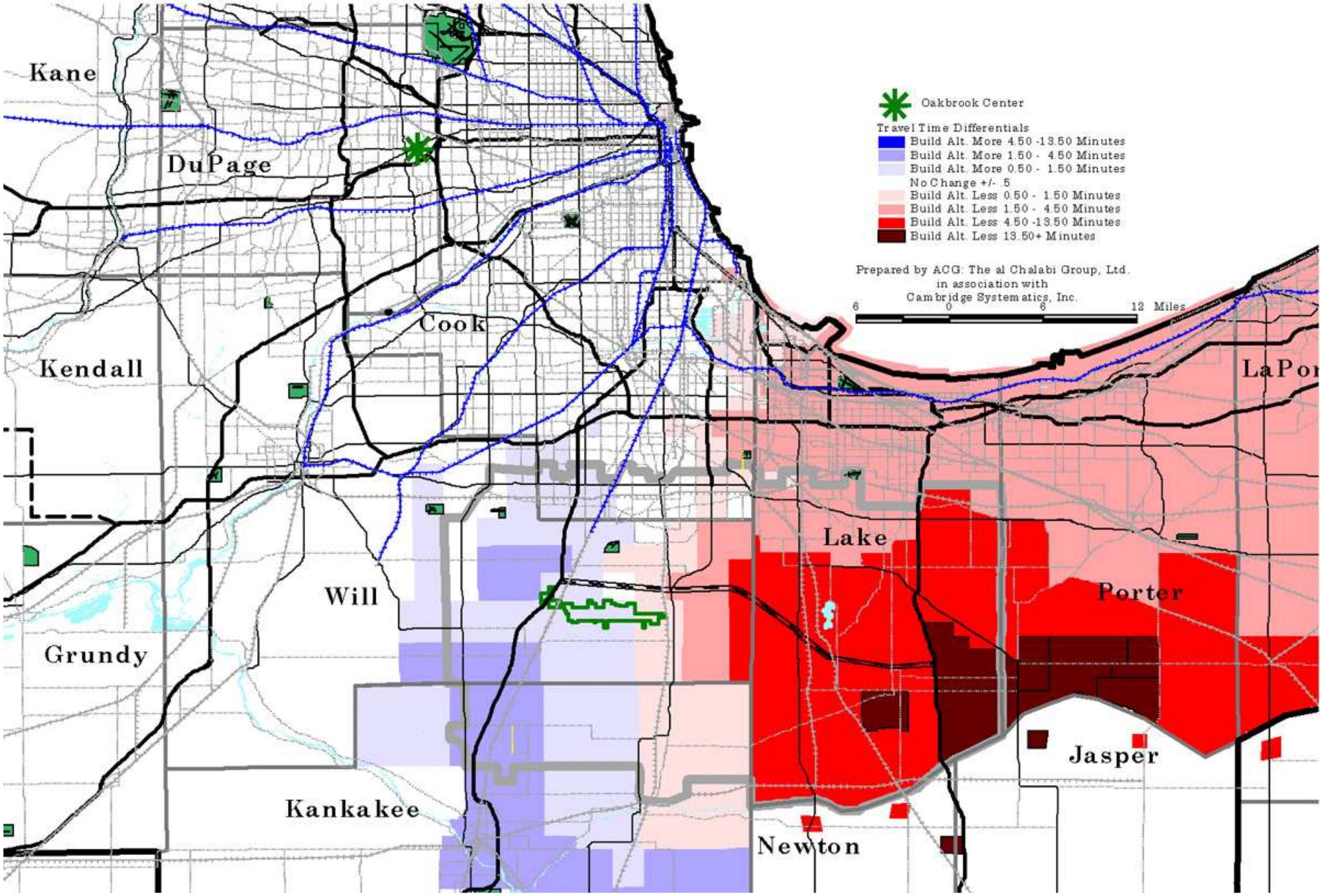
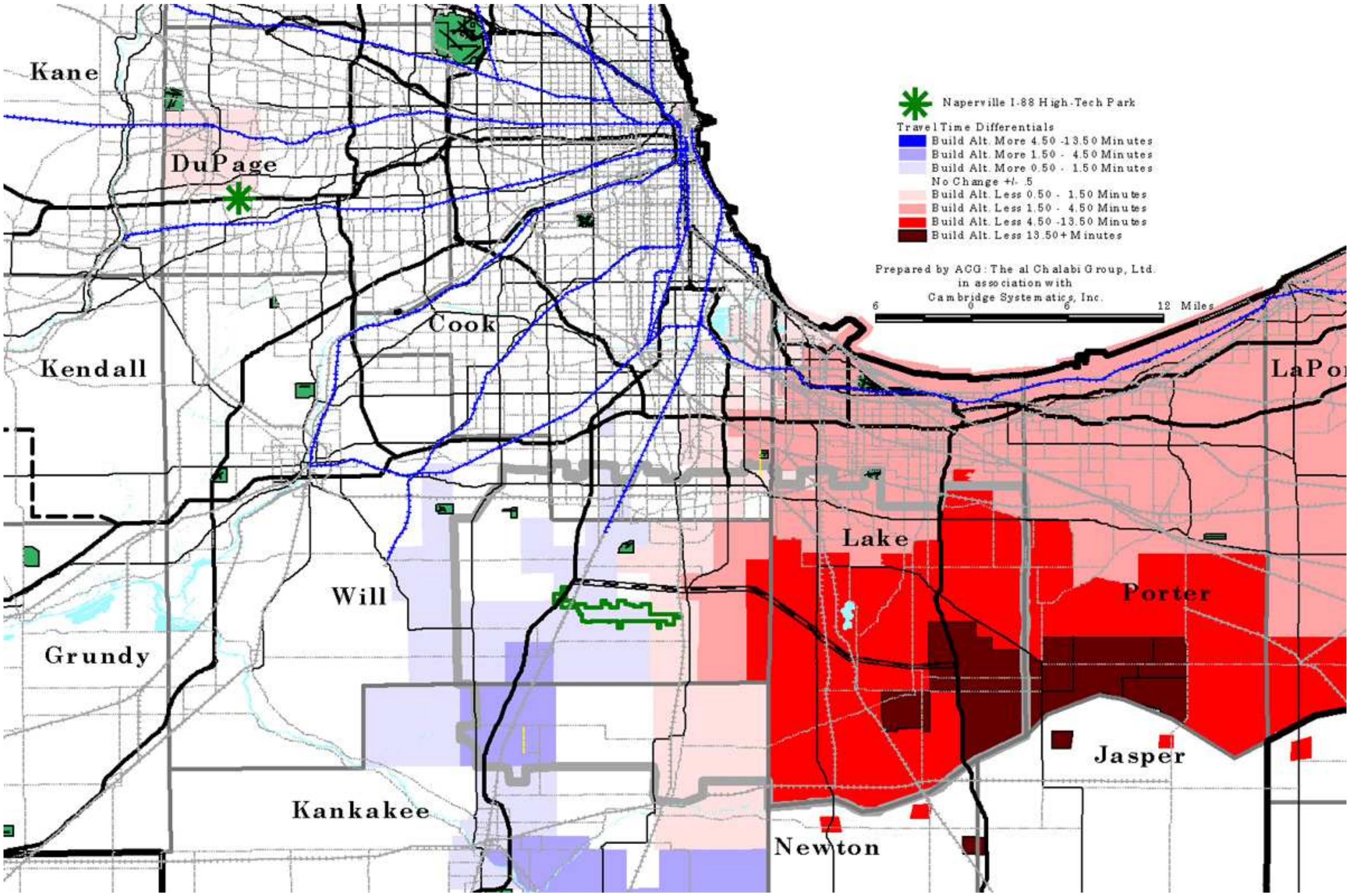


Figure 8.38 Travel Time Differentials to Naperville/I-88 High Tech Corridor 2030 Hybrid Build Alternative (AC2) as Compared to 2030 No-Build Network



Preliminary Findings

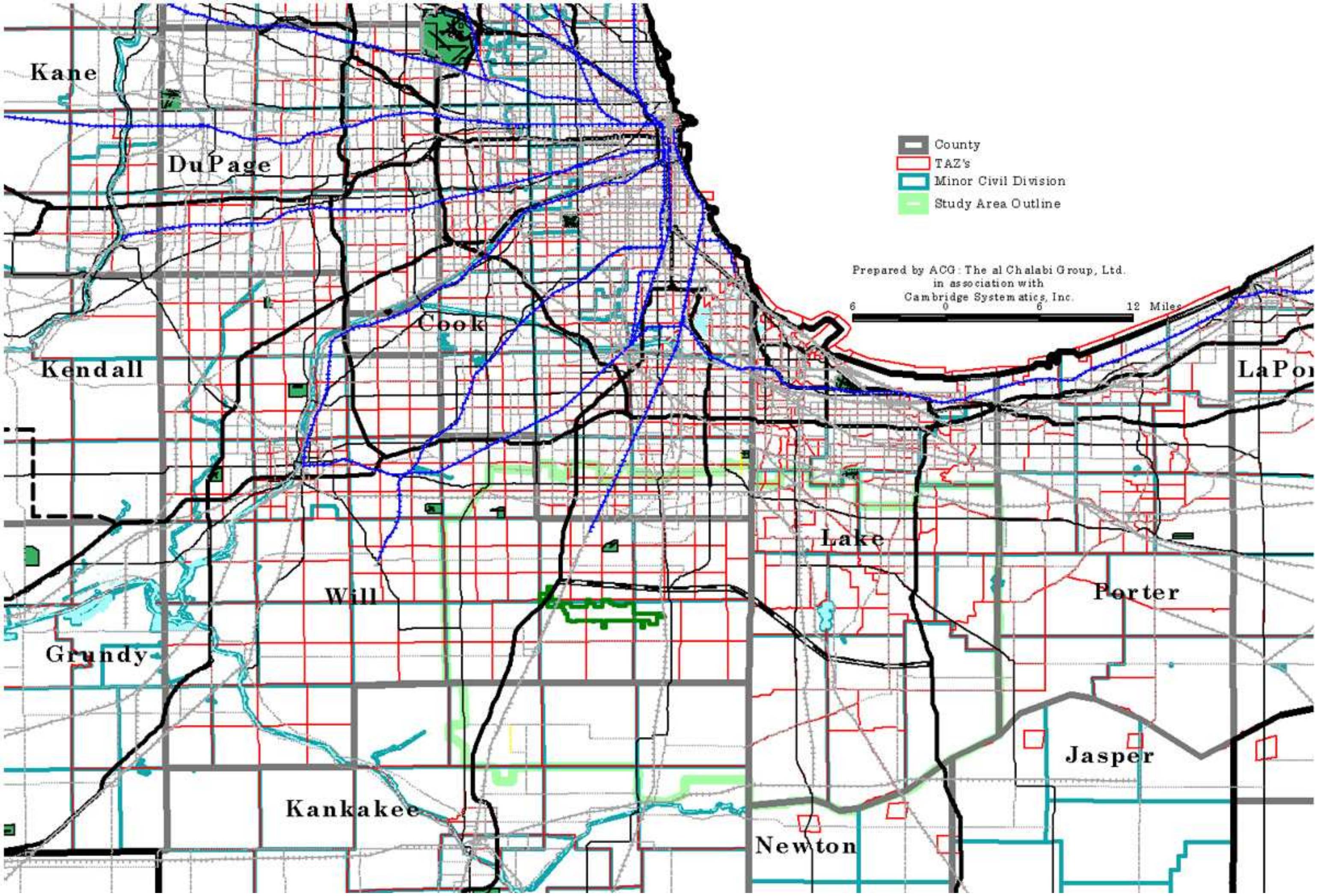
A comparison of the individual destination impacts, shown above, with the Change in Composite Accessibility Measure, previously described and shown in Figure 8.20, identifies a concern that is not as evident on the latter exhibit. Overall accessibility is greatly improved for Northwest Indiana and the eastern border area of Illinois. However, as shown in the travel time differentials in selected individual zones, access from zones west of I-57 to zones east are improved; but, are deteriorated to zones west of I-57 and north (and vice versa). This is a significant part of the Illinois portion of the Chicago CSA and contains major destinations, including the Chicago Central Area, O'Hare and Midway Airports. The deterioration of access to the area west of I-57 is due, primarily, to the increased traffic that the Illiana Expressway loads on I-57.

Socioeconomic Impacts

Impacts of Changes in Accessibility Indexes on Residential Development

Improving access to jobs makes an area (measured by township, in this instance) more attractive for residential development, assuming all other factors influencing development are held constant. The first step is to apply the changes in accessibility discussed in the previous section, to the 2007-2030 forecasted baseline growth in population. Because this is a sketch analysis, accessibility for each MCD (township) is derived by developing a weighted average of the accessibility measures of its component TAZ's – weighted by their areas. Figure 8.39 shows the relationships between these TAZ's and the townships of the Chicago CSA.

Figure 8.39 TAZ's Within Minor Civil Divisions



This first step yielded an initial redistribution of population representing the impact of building the Illiana Expressway, the Hybrid Build Alternative (AC2). Following this initial redistribution, three levels of adjustments were made; these are:

- **Setting a Floor –** Townships with zero household growth, but which would experience a significant increase in accessibility to jobs, are assigned a minimum number of additional population. The magnitude of this additional population is a function of the increase in accessibility index.
- **Setting a Ceiling –** The holding capacity for each township normally is calculated using such criteria as prevailing densities and available developable land in each TAZ. This is a step normally undertaken in close coordination with the regional planning agency (CMAP/NIRPC). As this is a sketch analysis, holding capacities for the entire township were assumed to be adequate to accommodate the 2007-2030 population growth. This detailed analysis, by TAZ, for setting a ceiling, should be carried out in a subsequent study.
- **Balancing the Accessibility-Induced Adjustments** – The sum of the Illiana Expressway-induced growth in population, as adjusted by the preceding two steps, is balanced by reduction in growth elsewhere in the Chicago CSA. The magnitude of the reduction in growth, by township is determined by the relative decrease in its accessibility index.

Balancing the increases with decreases in forecasted growth is a policy assumption of ACG's build/no-build impact analysis model. Not undertaking such a balancing implies more growth in the Chicago CSA at the expense of other regions within the U.S. There is no basis for assuming such transfers among regions in the absence of a nationwide, single transportation modeling effort. It should be noted, however, that the addition of the Illiana does improve accessibility, overall, for the Chicago CSA. It greatly improves accessibility at the edge of the urban area, particularly in Northwest Indiana and the Illinois border areas of Will and Kankakee Counties. Simultaneously, it increases composite accessibility to the entire Northwestern Indiana region, including its mature urban areas, presumably by reducing congestion on the existing major transportation network.

Figure 8.40 shows the impact of the Illiana Expressway Hybrid Build Alternative (AC2) on the redistribution of population, by MCD. The townships receiving most of the additional growth in population are those experiencing significant changes in accessibility. MCD's experiencing lesser growth are those with significant reduction in accessibility, or those experiencing some or almost no measurable reduction in accessibility, but which are forecasted to experience considerable 2007-2030 growth in population under the Baseline Alternative. It should be noted, that no township would experience an actual decline in population during the period 2007-2030, due solely to the construction of the Illiana.

Table 8.14 shows the population forecasts, by county and sub-areas in the Study Area for the Baseline. The Baseline includes all committed projects EXCEPT the Illiana Expressway. This table shows 2000 and 2007 base year data, 2030 forecasts, and the implied 2007-2030 change. Table 8.15 presents the differences between the Baseline and Hybrid Build Alternative. These differences are shown - for the above county and sub-county areas – in three categories: the sum of MCD's (townships) receiving additional population (positive impact); the sum of MCD's receiving lesser population growth (negative impact); and the net differences (sum of positive and negative changes). For the Chicago CSA, as a whole, 15,505 persons will be attracted into the vicinity of the Illiana Expressway Hybrid Build Alternative (AC2).

This additional population is almost evenly divided between Indiana and Illinois. Northwest Indiana MCD's receive 7,454 additional persons; and, no MCD experiences lesser growth. Illinois gains 8,051 persons, primarily in eastern Will County (6,353 balanced by 2,105 persons fewer growth in the center and west, for a 4,248 net growth). The remainder of the Illinois growth is in South Suburban Cook County (1,105 net) and Kankakee County (88 net). The increases are balanced by lesser growth (all in Illinois, primarily the City of Chicago and north and West Cook and Kane Counties).

Figure 8.40 Additional Population Attracted to Vicinity of Illiana Hybrid Build Alternative (AC2) as Compared to 2030 No-Build Network

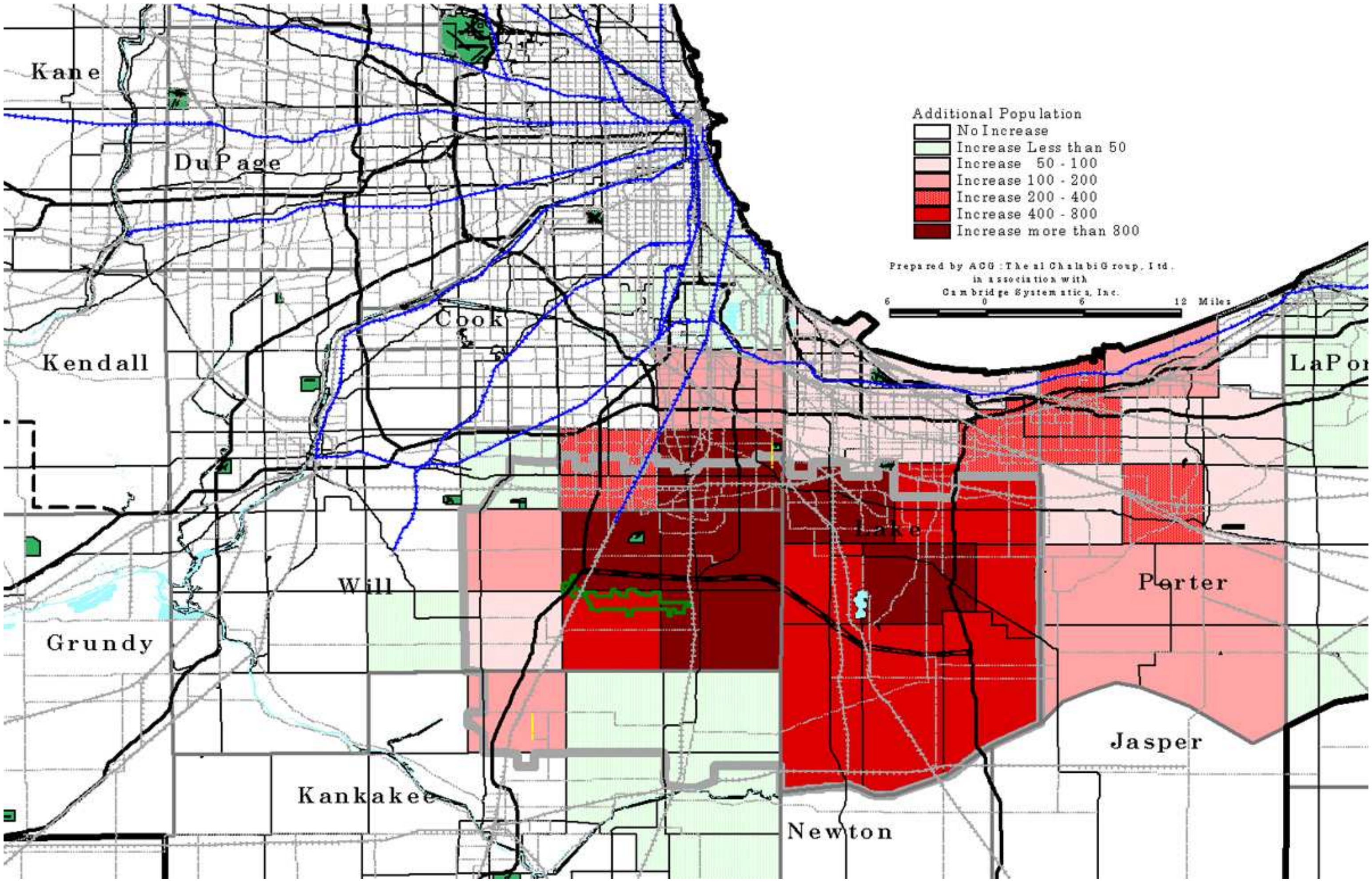


Table 8.14 Baseline Population Trends and Forecasts, by Minor Civil Division

MCD Name	2000 Population (Census Estimate – July)	2007 Population (Census Est)	2030 Population (CMAP/NIRPC)	2007-2030 Population Change	2007-2030 Population Growth Only
Summary by County/Sub County					
City of Chicago	2,896,287	2,836,065	3,261,464	425,399	425,399
Suburban Cook – North	1,047,725	1,044,943	1,104,953	60,010	64,971
Suburban Cook – South	790,212	787,177	936,353	149,176	149,176
Suburban Cook – West	643,704	616,922	648,459	31,537	37,768
Cook County	5,377,928	5,285,107	5,951,229	666,122	677,314
Dekalb County	89,331	103,729	130,005	26,276	26,276
DuPage County	906,742	928,599	1,003,704	75,105	76,826
Grundy County	37,674	47,144	65,006	17,862	17,862
Kane County	407,584	501,021	718,464	217,443	236,671
Kankakee County	103,881	110,705	150,000	39,295	39,789
Kendall County	55,207	96,818	176,608	79,790	79,790
Lake County (IL)	648,241	710,241	841,860	131,619	131,619
McHenry County	261,887	315,943	457,593	141,650	141,650
Will County	508,067	673,586	1,076,447	402,861	422,373
Lake County (IN)	484,511	492,104	557,100	64,996	69,788
LaPorte County	110,162	109,787	114,371	4,584	6,087
Porter County	147,166	160,578	212,900	52,322	52,466
Illinois Counties	8,396,542	8,772,893	10,570,916	1,798,023	1,850,170
Indiana Counties	741,839	762,469	884,371	121,902	128,341
2-State Region	9,138,381	9,535,362	11,455,287	1,919,925	1,978,511

Table 8.15 Impacts of Illiana Expressway Hybrid Build (AC2) on Population (2030) – Distribution by Minor Civil Division

MCD Name	Positive Impacts	Negative Impacts	Net Impacts
Summary by County/Sub County			
City of Chicago	36	-3,673	-3,637
Suburban Cook – North	0	-753	-753
Suburban Cook – South	1,392	-286	1,105
Suburban Cook – West	0	-437	-437
Cook County	1,428	-5,149	-3,721
DeKalb County	0	-294	-294
DuPage County	0	-772	-772
Grundy County	0	-112	-112
Kane County	0	-3,343	-3,343
Kankakee County	251	-162	89
Kendall County	0	-745	-745
Lake County (IL)	0	-947	-947
McHenry County	0	-1,877	-1,877
Will County	6,353	-2,105	4,248
Lake County (IN)	5,829	0	5,829
LaPorte County	144	0	144
Porter County	1,501	0	1,501
Illinois Counties	8,031	-15,505	-7,474
Indiana Counties	7,474	0	7,474
2-State Region	15,505	-15,505	0

Impact of Changes in Accessibility Indexes on Employment Distribution

Whereas improving a TAZ's accessibility to jobs makes it more attractive for residential development; the opposite also is true. Improved accessibility to residential concentrations implies better access to labor and consumption, making the area more attractive to industrial and commercial development. In addition to improving accessibility to residential areas, limited access roads create special nodes at their interchanges with arterials. The combination of these two factors forms the basis for determining the impact of most major limited access highways on the redistribution of employment. In the sketch analysis of the Illiana build impact, however data is available at the MCD (township) level, only, and is insufficient to determine TAZ-level impacts at interchanges. Furthermore, there was, in effect, a deliberate policy to manage interchange development.

The methodology for determining the impact of changes in accessibility indexes on employment distribution is the same as that used for residential redistribution. Once the distribution of additional growth in employment was completed, a balancing process was undertaken, similar to that described for studying the residential impacts of the Illiana Expressway. Again, the total 2030 employment forecast for the CSA is assumed to remain unchanged. The 2007-2030 employment growth in townships forecasted to experience reduction in accessibility were reduced proportionately.

Case study methodology is the approach used to forecast the additional employment attracted to the proximity of interchanges. Twenty-one interchanges in the Chicago CSA were studied in an earlier, but recent, project for this purpose; this was the Prairie Parkway EIS. These interchanges were selected because they possess characteristics that would be replicable at the interchanges proposed. These relationships can be used, in a subsequent study, to improve and refine the impact analysis. At that time, additional interchanges in Northwest Indiana can be added to those of the prior study.

Figure 8.41 shows the impact of the Illiana Expressway Hybrid Build Alternative (AC2) on the redistribution of employment for 2030. The townships that are forecasted to receive additional growth, above the baseline forecast in employment, are concentrated along the proposed Expressway; along the two expressways that form its termini (I-65 and I-57); and in areas forecasted to receive additional residential development. Townships forecasted to experience lesser growth are clustered in the north and northwest sectors of the region, including the north and western portions of the City of Chicago.

Table 8.16 shows the employment forecasts by county and sub-areas in Cook County, for the Baseline (e.g. without the Illiana Expressway). Table 8.17 shows the impact of the Illiana Expressway, as a breakdown of the net employment change to positive (additional) and negative (less growth) sums. The Illiana Expressway Hybrid Build (AC2) causes the redistribution of 9,337 jobs within the Chicago CSA. More than half (5,179) of these jobs are attracted to Northwest Indiana. There are no negative impacts on employment in Northwest Indiana as a result of the construction of the Illiana Expressway.

There is significant redistribution of job growth in Illinois, with additional jobs attracted to eastern Will and Kankakee Counties. This additional job growth is balanced by lesser net job growth, primarily in Cook County (-1,566), DuPage County (-1,558), and Kane County (-2,087). It should be noted, that these reductions in employment growth represent 0.27 percent, 0.96 percent, and 1.5 percent of 2007-2030 baseline employment growth for Cook, DuPage, and Kane Counties, respectively.

It is worth noting, that the impact of the Illiana Expressway is somewhat greater in population redistribution than in employment redistribution. The general consensus is that the Illiana Expressway will encourage economic development in Northwest Indiana and Eastern Will County. However, significant portions of these counties will remain dependent on the major job concentrations in the Chicago Central Area and other Illinois counties. This makes accessibility improvements along I-57 a major consideration.

Figure 8.41 Additional Employment Attracted to Vicinity of Illiana Hybrid Build Alternative (AC2) as Compared to No-Build Network (2030)

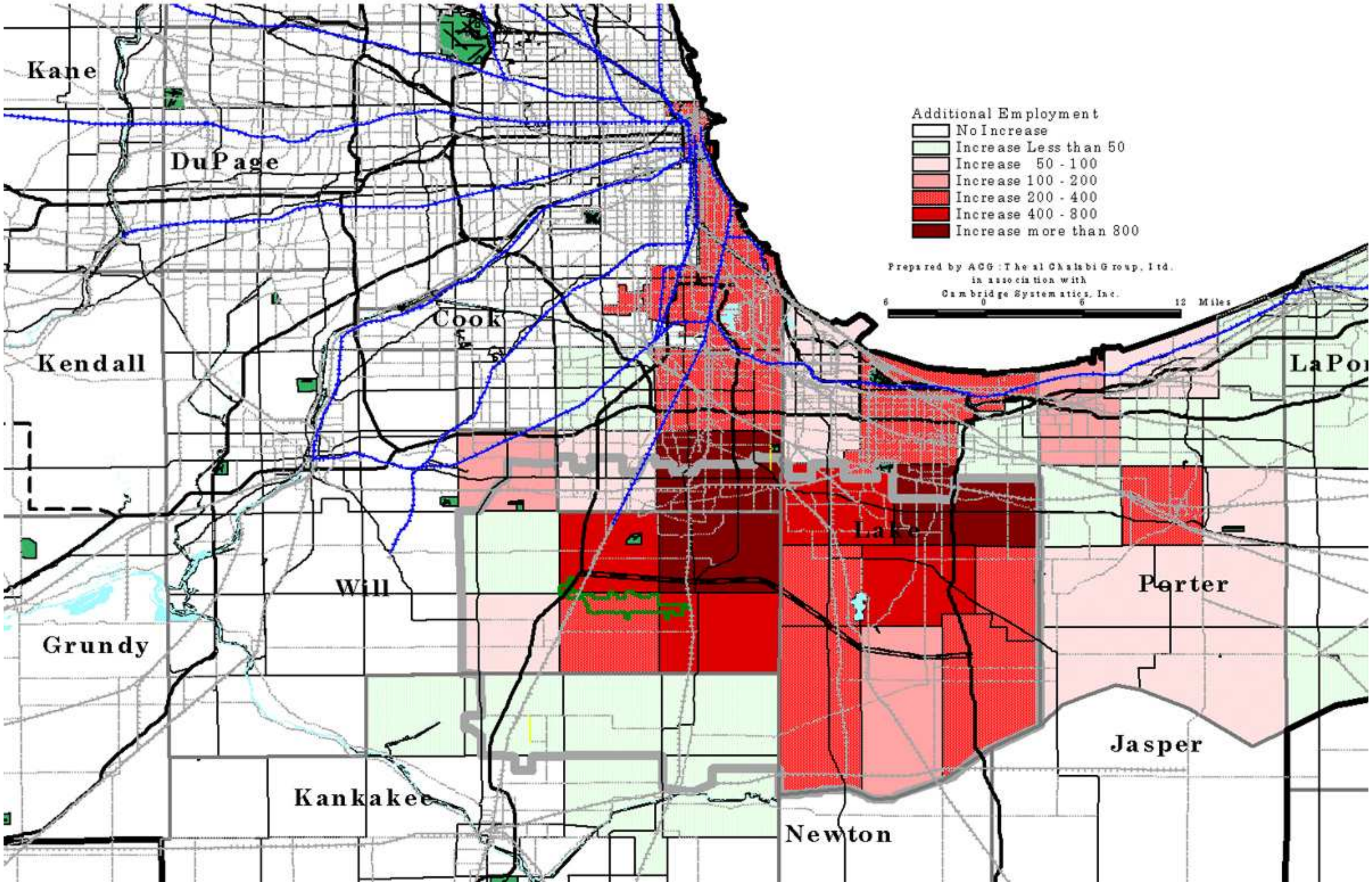


Table 8.16 Baseline Employment Trends and Forecasts, by Minor Civil Division

MCD Name	2000 Employment CMAP/ NIRPC (BLS)	2007 Employment Tetrad (BEA)	2007 Employment CMAP Interpolation & NIRPC (BLS)	2007 Employment Illiana Study Estimated (BLS)	2030 Employment CMAP/ NIRPC (BLS)	2007-2030 Employment CMAP/ NIRPC (BLS)
Summary by County/Sub County						
City of Chicago	1,542,925	1,582,702	1,562,323	1,496,637	1,745,101	248,464
Suburban Cook – North	715,639	838,084	744,480	667,994	843,720	175,726
Suburban Cook – South	282,593	377,333	302,351	266,876	369,853	102,977
Suburban Cook – West	320,951	363,026	326,908	303,700	350,757	47,057
Cook County	2,862,108	3,161,145	2,936,062	2,735,207	3,309,431	574,224
Dekalb County	n/a	43,996	n/a	44,539	63,086	18,547
DuPage County	649,884	703,400	691,979	667,992	830,293	162,301
Grundy County	n/a	21,220	n/a	19,040	29,435	10,395
Kane County	206,107	220,850	237,964	220,838	352,207	131,369
Kankakee County	48,483	59,663	37,170	46,566	60,773	14,206
Kendall County	n/a	25,4990	n/a	23,590	58,8780	35,280
Lake County (IL)	352,582	430,048	377,981	377,744	463,509	85,765
McHenry County	105,118	147,731	119,729	120,623	168,575	47,952
Will County	165,556	240,399	230,372	216,656	415,550	198,894
Lake County (IN)	201,321	227,516	154,346	191,341	253,267	61,926
LaPorte County	48,403	59,020	37,116	49,636	51,708	2,072
Porter County	54,126	73,846	41,497	62,104	96,252	34,148
Illinois Counties	4,389,838	5,053,912	4,631,257	4,472,795	5,751,729	1,278,934
Indiana Counties	303,850	360,382	232,959	303,081	401,227	98,146
2-State Region	4,693,688	5,414,294	4,864,216	4,775,876	6,152,956	1,377,080

Table 8.17 Impacts of Illiana Expressway Hybrid Build (AC2) on Employment (2030) – Distribution by Minor Civil Division

MCD Name	Positive Impacts	Negative Impacts	Net Impacts
Summary by County/Sub County			
City of Chicago	508	-1,100	-592
Suburban Cook – North	0	-1,649	-1,649
Suburban Cook – South	1,353	-102	1,251
Suburban Cook – West	0	-576	-576
Cook County	1,861	-3,427	-1,566
DeKalb County	0	-169	-169
DuPage County	0	-1,558	-1,558
Grundy County	0	-44	-44
Kane County	0	-1,087	-2,087
Kankakee County	71	-50	21
Kendall County	0	-256	-256
Lake County (IL)	0	-438	-438
McHenry County	0	-535	-535
Will County	2,225	-773	1,451
Lake County (IN)	4.137	0	4,137
LaPorte County	114	0	114
Porter County	929	0	929
Illinois Counties	4,157	-9,337	-5,179
Indiana Counties	5,180	0	5,180
2-State Region	9,337	-9,337	0

9.0 Level 2 Financial Assessment

This Level 2 Financial Assessment incorporates the preliminary data developed for the Illiana Expressway Feasibility Study (such as the construction cost estimates and projected traffic volumes) and various financing assumptions (such as the term and interest rates for toll revenue bonds). The preliminary data used in the analysis and the placeholder assumptions are reasonable for a feasibility study, but further analysis and research will need to be undertaken before any definitive conclusions can be drawn regarding the optimal funding strategy for the project.

9.1 Methodology

To evaluate the financial viability of the conceptual corridor alignments for the Illiana Expressway, we developed a spreadsheet-based project finance model.

Key Inputs and Assumptions

Preliminary Construction Cost Estimates

As discussed in Section 5.0, preliminary cost estimates were developed for the three conceptual corridor alignments using graphical information generated from the collected mapping and GIS data. An amount equal to 20 percent of the construction cost estimate was added for supervision, inspection and owner's contingency. Right-of-way expenses were determined using a cost per acre approach.

Estimated Traffic Volumes

The bonding capacity of each of the three conceptual alignments was evaluated using estimated traffic volumes developed for the eight-lane option (two general purpose traffic lanes and two truck-only lanes per direction) and toll levels equal to two times the existing average level of auto and truck tolls in the region. In addition we evaluated the financial implications of other toll rates for the northern corridor (AC3). The development of the Illiana Model for estimating projected traffic volumes is described in Section 6.0, and resulting traffic forecasts are shown in Section 7.0.

Annual Operation and Maintenance Expenses

Estimates for annual toll collection and routine maintenance expenses, which were developed for each of the three alignment corridors in 2008 dollars (Tables 5.2 to 5.4), were escalated to the year of expenditure at three percent.

Major Maintenance Expenses

Preliminary estimates for future major maintenance needs, such as pavement and bridge deck replacement, are included in the financial model. Amounts were developed for each of the three alignment corridors in current dollars (Tables 5.2 to 5.4) and escalated to the year of expenditure at three percent.

Project Financing

Six financing scenarios were developed to highlight the financial viability of each of the three alignment corridors and the incremental debt capacity at different toll rate levels. Each of the Scenarios 1 through 6 assumes the issuance of tax-exempt toll revenue bonds amortized over 45 years. The debt has a senior claim on net toll revenue after payment of operating expenses and is structured to achieve minimum annual debt service coverage of 1.50x. The assumed interest rate for current interest bonds is 6.25 percent and the yield on capital appreciation bonds – securities that pay compounded interest at maturity – is 6.75 percent. Those financing scenarios also include Federal credit assistance in the form of a low-cost subordinate loan provided under the Federal Transportation Infrastructure Finance and Innovation Act of 1998 (TIFIA). The TIFIA loan has an assumed interest rate of 4.50 percent and the loan is structured to maintain a minimum of 1.10x annual debt service coverage.

9.2 Estimated Debt Capacity by Alignment

The Level 2 Financial Assessment indicates that projected toll revenues for each alignment will support similar amounts of debt financing. Table 9.1 shows the potential debt capacity for each corridor alignment assuming toll rates are initially set at levels equal to two times average toll levels on existing facilities in the region ($0.08, $0.12, and $0.28 per mile for autos, trucks and heavy trucks, respectively). **Scenario 1**, the southern alignment (AC1), has the lowest level of estimated daily traffic in 2030, but over 50 percent of the vehicles are expected to be heavy trucks that pay toll rates 3.5 times higher than autos. As a result, the projected gross toll revenue for 2030 on the southern alignment is comparable to the estimated toll revenue for the other two alignments which have higher total traffic, but lower percentages of heavy trucks. About 30.4 percent of the capital cost of the project is supported through toll revenue.

Scenario 2, the central corridor alignment (AC2), has the highest estimated project costs and the highest projected toll revenues at the assumed toll rates, but only 32.5 percent of the total funding requirement is estimated to be covered from anticipated bond proceeds.

In **Scenario 3**, approximately 34.5 percent of the total funding requirement for an eight-lane facility in the northern corridor (AC3) can be funded from the proceeds of toll revenue bonds. The percentage funded is slightly higher for this corridor because the total funding requirement is lower. The lower cost is due to the shorter length and lower bridge costs which offset higher estimated right-of-way acquisition costs.

In addition to supporting construction financing, the projected toll revenues can be used to pay major maintenance expenses over time. The preliminary cost estimates over a 75-year period range from $3.29 billion to $3.48 billion for each of the conceptual corridor alignments. Though there is no guarantee that the toll revenue projections will be realized, on a pro forma basis, the total toll revenue available after payment of annual operation and maintenance expenses and debt service requirements over the 75-year period exceeds the potential expenditures.

9.3 TOLL RATE SENSITIVITY ANALYSIS

Table 9.2 shows the potential debt capacity for the eight-lane northern corridor alignment (AC3) with different levels of toll rates for autos, trucks, and heavy trucks.

Scenario 4 has the lowest assumed toll rates per mile (comparable to rates on existing toll facilities in the region). In the initial years of operation (2020 to 2030), rates are assumed to be $0.04, $0.06, and $0.14 per mile for autos, trucks, and heavy trucks, respectively. At those toll levels, estimated daily traffic is approximately 13 percent higher than in Scenario 3, but gross toll revenue in 2030 is 43 percent lower. The percentage of the total project costs that can be funded from bond proceeds drops from 34.5 percent to 14.1 percent and estimated net revenue after payment of debt service is significantly less than the estimated major maintenance requirements over 75 years.

The toll rates in **Scenario 5** ($0.16, $0.24, and $0.56 per mile for autos, trucks and heavy trucks, respectively) are twice the rates in Scenario 3 and gross toll revenue in 2030 is approximately 31 percent higher. The projected toll revenue is sufficient to generate bond proceeds that cover nearly 50 percent of the estimated project costs and the estimated net revenue after payment of debt service is more than $2.5 billion greater than the estimated major maintenance requirements over 75 years.

With higher toll rates, projected traffic generally decreases because the cost for some trips will exceed the perceived value for some users (in terms of time savings or convenience). At some point, additional toll increases will generate less revenue because of the reduction in the overall number of transactions offsets the incremental increase in revenue per transaction. **Scenario 6** indicates that the revenue maximization point for the Illiana Expressway may lie between four and six times existing toll rates in the region. The gross toll revenue in 2030 for Scenario 6 is almost identical to the gross revenue generated under Scenario 5 even though toll rates are 50 percent higher ($0.24, $0.36, and $0.84 per mile for autos, trucks and heavy trucks, respectively). The higher toll rates in Scenario 6 are offset by estimated traffic that is 30 percent lower than Scenario 5 (with the lower percentage of heavy truck traffic). Given the marginal increase in revenue from the higher rates in Scenario six and the precipitous drop in traffic, the toll rates in Scenario 6 are probably higher than should be charged if trying to balance the twin objectives of revenue maximization and benefit to the traveling public.

9.4 Alternative Financing Approaches

There are many types of contractual arrangements with private sector entities that may facilitate or enhance the development of transportation infrastructure projects like the Illiana Expressway. One option that might be considered is a toll concession that assigns responsibility for securing project funding to a private entity. As part of the Level 2 Financial Assessment a conceptual valuation was undertaken to determine the potential value of the toll facility if it were to be leased to a private consortium for a 75-year term. The concession scenario is based on the northern corridor alignment (AC3) and assumes the private consortium secures equity financing equal to 25 percent of the required funding with a target investment return of 10 percent. The remaining 75 percent of the project cost is funded with debt that has an average cost of 6.0 percent over the 75-year period, which results in an effective cost of capital for the concession scenario of 7.0 percent.

The concession scenario also assumes initial toll rates equal to the levels in Scenario 5 ($0.16, $0.24, and $0.56 per mile for autos, trucks and heavy trucks, respectively), but with 2.5 percent annual escalation thereafter. With this assumed escalation by the concessionaire, the resulting gross toll revenue for the concession scenario is approximately $5.4 billion higher over the 75-year period than projected for Scenario 5.

Under the assumptions outlined above, a private concessionaire might be able to fund $670 million, or approximately 60 percent of the estimated project cost, including right-of-way acquisition. The conceptual value of the toll concession is based solely on the discounted value of potential net operating income less the present value cost of anticipated major maintenance investments over 75 years. As shown in Table 9.3, that amount is approximately $68 million greater than the total proceeds generated from the tax-exempt financing assumed in Scenario 5.

The global economic downturn has created some uncertainty with regard to the viability of various public-private partnership structures, but the conceptual concession scenario does illustrate that a higher cost of capital will not necessarily result in a lower amount of project funding. The value of a private toll concession, and other vehicles for private investment in public infrastructure, will ultimately depend on the specific contractual terms and conditions in the capital markets. It also is important to note that the conceptual valuation does not attempt to quantify the potential benefits derived from transferring the risk of construction delays and cost overruns to the private sector and the economic and social benefits that may be derived if a toll concession approach expedites completion of the project.

9.5 DISCLAIMER

The preliminary traffic and toll revenue and conceptual financing forecasts presented in this document are intended to be used for planning purposes and are not adequate to be used to support a project financing. The forecasts are based on judgments and assumptions which may differ materially from the actual results. This report is not intended nor should it be construed to constitute a guaranty of any particular outcome(s) or result(s). This report is similarly not intended nor should it be construed to represent a promise or representation with respect to any particular outcome(s) or result(s).

Table 9.1 Summary of Results by Alignment

	SCENARIO ONE	SCENARIO TWO	SCENARIO THREE
	AC1 South Eight Lanes - Tolls 2x	**AC2** Central Eight Lanes - Tolls 2x	**AC3** North Eight Lanes - Tolls 2x
Length of Facility (miles)			
Segment 1	11	11	8
Segment 2	8	11	8
Segment 3	9	9	9
	29	30	25
Toll Rates ($ per mile)			
Autos	$0.08	$0.08	$0.08
Trucks	$0.12	$0.12	$0.12
Heavy Trucks	$0.28	$0.28	$0.28
Average Annual Daily Traffic in 2030	20,541	26,687	32,871
Autos as % of 2030 AADT	15%	26%	35%
Trucks as % of 2030 AADT	33%	38%	38%
Heavy Trucks as % of 2030 AADT	52%	36%	27%
Gross Toll Revenue 2020	$31,475,499	$33,108,224	$32,948,539
Gross Toll Revenue 2030	$35,463,186	$37,302,764	$37,122,848
Gross Toll Revenue 2050	$65,911,128	$69,330,129	$68,995,740
Estimated Project Cost	$1,167,174,092	$1,136,939,611	$1,029,241,883
Right of Way Acquisition	37,546,851	71,109,066	100,857,806
Debt Reserves and Financing Costs	75,781,329	82,085,137	81,804,292
Total Funding Requirement	**$1,280,502,272**	**$1,290,133,814**	**$1,211,903,981**
Toll Revenue Bond Proceeds	$275,761,272	$297,832,399	$296,879,149
Subordinated TIFIA Loan	113,061,454	121,889,809	121,514,441
Total Proceeds	$388,822,725	$419,722,208	$418,393,590
% of Total Funding Requirement	*30.4%*	*32.5%*	*34.5%*
ADDITIONAL CAPITAL INVESTMENT REQUIRED	**$891,679,547**	**$870,411,606**	**$793,510,391**
% of Total Funding Requirement	*69.6%*	*67.5%*	*65.5%*
Estimated Net Revenue after Debt Service (2020-2092)	$3,834,421,351	$4,127,017,852	$4,114,074,812
Estimated Major Maintenance and Rehab (2020-2092)	$3,488,285,236	$3,422,562,326	$3,290,573,341

Table 9.2 Summary of Toll Rate Sensitivity

	SCENARIO THREE	SCENARIO FOUR	SCENARIO FIVE	SCENARIO SIX
	AC3 North Eight Lanes - Tolls **2x**	**AC3** North Eight Lanes - Tolls **1x**	**AC3** North Eight Lanes - Tolls **4x**	**AC3** North Eight Lanes - Tolls **6x**
Length of Facility (miles)				
Segment 1	8	8	8	8
Segment 2	8	8	8	8
Segment 3	9	9	9	9
	25	25	25	25
Toll Rates ($ per mile)				
Autos	$0.08	$0.04	$0.16	$0.24
Trucks	$0.12	$0.06	$0.24	$0.36
Heavy Trucks	$0.28	$0.14	$0.56	$0.84
Average Annual Daily Traffic in 2030	32,871	37,112	23,864	16,663
Autos as % of 2030 AADT	35%	35%	37%	38%
Trucks as % of 2030 AADT	38%	37%	45%	48%
Heavy Trucks as % of 2030 AADT	27%	28%	17%	14%
Gross Toll Revenue 2020	$32,948,539	$18,825,894	$43,183,036	$43,378,631
Gross Toll Revenue 2030	$37,122,848	$21,210,980	$48,653,971	$48,874,347
Gross Toll Revenue 2050	$68,995,740	$39,422,278	$90,427,242	$90,836,827
Estimated Project Cost	$1,029,241,883	$1,029,241,883	$1,029,241,883	$1,029,241,883
Right of Way Acquisition	100,857,806	100,857,806	100,857,806	100,857,806
Debt Reserves and Financing Costs	81,804,292	29,906,977	119,408,133	120,124,945
Total Funding Requirement	**$1,211,903,981**	**$1,160,006,666**	**$1,249,507,822**	**$1,250,224,634**
Toll Revenue Bond Proceeds	$296,879,149	$115,099,785	$428,608,166	$431,126,603
Subordinated TIFIA Loan	121,514,441	48,958,691	174,079,393	175,074,897
Total Proceeds	$418,393,590	$164,058,476	$602,687,558	$606,201,500
% of Total Funding Requirement	*34.5%*	*14.1%*	*48.2%*	*48.5%*
ADDITIONAL CAPITAL INVESTMENT REQUIRED	**$793,510,391**	**$995,948,190**	**$646,820,263**	**$644,023,134**
% of Total Funding Requirement	*65.5%*	*85.9%*	*51.8%*	*51.5%*
Estimated Net Revenue after Debt Service (2020-2092)	$4,114,074,812	$1,700,356,580	$5,863,281,414	$5,896,730,949
Estimated Major Maintenance and Rehab (2020-2092)	$3,290,573,341	$3,290,573,341	$3,290,573,341	$3,290,573,341

Table 9.3 Summary of Concession Scenario

	SCENARIO FIVE	CONCESSION SCENARIO
	AC3	**AC3**
	North	North
	Eight Lanes - Tolls **4x**	Eight Lanes - **Concession**
Length of Facility (miles)		
Segment 1	8	8
Segment 2	8	8
Segment 3	9	9
	25	25
Toll Rates in 2030 ($ per mile)		
Autos	$0.16	$0.20
Trucks	$0.24	$0.31
Heavy Trucks	$0.56	$0.72
Average Annual Daily Traffic in 2030	23,864	23,864
Autos as % of 2030 AADT	37%	37%
Trucks as % of 2030 AADT	45%	45%
Heavy Trucks as % of 2030 AADT	17%	17%
Gross Toll Revenue 2020	$43,183,036	$43,183,036
Gross Toll Revenue 2030	$48,653,971	$62,281,197
Gross Toll Revenue 2050	$90,427,242	$129,552,115
Estimated Project Cost	$1,029,241,883	$1,029,241,883
Right of Way Acquisition	100,857,806	100,857,806
Debt Reserves and Financing Costs	119,408,133	*cost reflected in assumed discount rate*
Total Funding Requirement	**$1,249,507,822**	**$1,130,099,689**
Toll Revenue Bond Proceeds	$428,608,166	
Subordinated TIFIA Loan	174,079,393	
Total Proceeds from Project Financing	$602,687,558	$670,544,091
% of Total Funding Requirement	*48.2%*	*59.3%*
ADDITIONAL CAPITAL INVESTMENT REQUIRED	**$646,820,263**	**$459,555,598**
% of Total Funding Requirement	*51.8%*	*40.7%*
Estimated Net Revenue after Debt Service (2020-2092)	$5,863,281,414	N/A
Estimated Major Maintenance and Rehab (2020-2092)	$3,290,573,341	$3,290,573,341

10.0 Evaluation of Alternatives

10.1 METHODOLOGY

Shown in Table 10.1 are the estimated impacts of the three proposed Alignment Corridors for comparative purposes. In the Performance Category, estimated traffic volumes, overall construction costs, congestion relief for the area, safety benefits in the form of crashes avoided on an annual basis, and overall improvements to accessibility are considered. For the Performance Category, all performance characteristics are estimated assuming that the Illiana is built as an eight-lane facility (two all-purpose lanes and two truck-only lanes in each direction) and tolled at two times the existing rate. As part of the Economic Impacts Category, the modeled economic impacts in the form of jobs created, income generated, and impacts on Gross Regional Product for the area are considered. The Socio-Economic Category considers the population and employment densities within the 3,000-foot Alignment Corridors as well as environmental justice issues. The Land Use Category quantifies the structures in the 3000-foot Corridors as well as municipal buildings, cemeteries, managed lands, areas of architectural and archaeological concern, and hazardous materials sites. Finally, the Environmental Impacts Category covers adjacency to sensitive habitats and the percentage of the Alignment Corridors that are categorized as wetland, floodplain, and a water well potential impact area.

10.2 COMPARATIVE MATRIX

Table 10.1 Illiana Expressway Alignment Corridor Impact Comparison

Features	Corridors AC1	AC2	AC3
Location	**South**	**Central**	**North**
Performance			
Estimated Illiana ADT Range (2030)	19,867-21,497	23,592-29,887	31,475-35,682
Construction Cost (million)	$533.2-$984.8	$519.6-$959.3	$471.8-$868.4
ROW Cost (million)	$30.8-$37.5	$59.4-$71.1	$87.1-$100.9
Annual Maintenance Cost (million)[a]	$2.2-$2.8	$2.2-$2.8	$2.1-$2.7
Travel Time Savings (2030, area reduction in VHT)[b]	2.1%	2.3%	2.7%
Estimated Crash Reduction (2030, annual)	350	365	385
Accessibility Improvement	Positive	Positive	Positive
Economic Impacts (w/ Supply Chain Benefits)			
Jobs Created (total at end of period)	265	605	1131
Income Generated (in millions of dollars)	141	336	648
GRP Increase (in millions of dollars)	213	533	1055
Socio-Economic Impacts			
Population Density (persons/square mile, Corridor)	48.6	115.4	301.2
Employment Density (workers/square mile, Corridor)	21.8	22	73.1
Environmental Justice Issues	Minimal	Minimal	Minimal
Land Use Impacts[c]			
Structures	167	231	1,024
Municipal Buildings (Gov't, Police, Fire, Schools)	None	None	None
Cemeteries	Plum Grove Cemetery	None	None
Adjacent Parks/Managed Lands	None	None	Plum Grove County Forest Preserve, Lemon Lake County Park
Areas of Concern for Historic Structures	None	None	Zion United Church of Christ in Hanover
Areas of Archaeological Concern	Mounds and Burial Site SE of Lowell	None	Northern edge of Mounds near Cedar Lake
Hazardous Material Locations	2	1	5
Environmental Impacts			
Adjacency to Sensitive Habitats	None	American Badger	None
NWI Wetlands (% of AC)	0.70%	2.80%	2.90%
Floodplain Area (% of AC)	9.80%	9.20%	3.70%
Water Well Potential Impact Area (% of AC)	12.70%	4.70%	17.10%

a. Period maintenance and reconstruction costs, as well as annual toll collection expenses, not included.

b. Percentage based on 24-hour demand. Peak hour percentages are expected to be larger.

c. Impacts shown are those that are quantifiable. These impacts reflect a 3,000-foot wide "study corridor" for each alignment; however, actual needed ROW will be smaller with lower actual impacts.

A. Agency Interview Respondents

- Northwestern Indiana Regional Planning Commission (NIRPC)
- Federal Highway Administration (FHWA)
- Indiana Toll Road Concession Company
- Indiana Department of Transportation (LaPorte District)
- Indiana Department of Historical Preservation & Archaeology
- Indiana Economic Development Corporation
- Illinois Department of Transportation
- Chicago Metropolitan Area Planning (CMAP)
- Illinois State Toll Highway Authority (ISTHA)
- US Department of Agriculture - Illinois
- Will County Planner
- US Department of Agriculture - Indiana
- Illinois Department of Natural Resources
- Illinois Environmental Protection Agency
- Indiana Department of Natural Resources
- Indiana Department of Environmental Management
- US Environmental Protection Agency (Illinois)
- Northwest Indiana Forum
- Lake County Planner
- Kankakee (Illinois) County Engineer
- Ports of Indiana (Burns Harbor)
- US Army Corp of Engineers (Detroit District)*
- US Fish and Wildlife Service (Bloomington, IN)*
- Illinois Historic Preservation Agency*
- Northwest Indiana Economic Development Council*

* Contacted but did not participate.

B. Agency Interview Questionnaire

Illiana Expressway Feasibility Study Agency Input Survey

Introduction

Thank you for agreeing to participate in this important study. I am ______________________
(insert name)
a member of the Cambridge Systematics Project Team that has been selected by INDOT to conduct the Illiana Expressway Feasibility Study. The series of questions which follow are prepared to assist the project team in its development of the Illiana Feasibility Study. As a representative of ________________________, we value your thoughts and insight.
(insert agency)

Q1. As a point of reference, the Illiana Study Area map has been electronically forwarded to your attention. Given this study area, do you feel the area defined is sufficient, or should it be broadened in any way?

____

____

____

____

____

If it should be broadened, what additional N,E,S,W boundaries should be included?

____

____

____

____

____

Q2. Within the original defined study area, what do you feel are the key interchange locations that the study team should consider?

(Note: If expanded boundaries are provided) What do you feel are the key interchanges in the expanded area, if any, that should be considered?

Q3. Are there assumptions in planning that you recommend we consider regarding any of the interchange locations you have referenced?

Q4. What are the potential opportunities created by Illiana as you see them? Feel free to define all that apply, for example, economic, mobility, safety, etc.

Q5. How would you gauge public opinion for the Illiana Expressway to be built as a Toll Facility? On a scale of 1 to 10 with 10 being extremely favorable, what rating would you provide?

Check (✓) 1☐ 2☐ 3☐ 4☐ 5 ☐ 6☐ 7☐ 8☐ 9☐ 10 ☐

Given that rating, what are your reasons for making this choice?

Q6. As we engage in this feasibility study, we recognize that the concept of Illiana has existed for quite some time, going back to the early 1900s. In that time, we also recognize that there have been many engaged stakeholders. What are the local support groups of which you are aware? (Please identify contact information for each if feasible) Are there any issues specific to these organizations of which you are aware?

Group	**Issue**

From your understanding, what are the local opposition groups of which you are aware?

(Please identify contact information for each if feasible) Are there any issues specific to these organizations of which you are aware?

Group	Issue

Q7. Given this feedback, what do you feel is the overall climate of reception for the Illiana Expressway? On a scale of 1 – 10, with 10 being excellent, how would you rate it?

Check (✓) 1☐ 2☐ 3☐ 4☐ 5 ☐ 6☐ 7☐ 8☐ 9☐ 10 ☐

Q8. Please share your thoughts on the rating you provided.

Q9. In your view, using the same 1 – 10 scale, what is the potential of this Expressway being built as a potential link to the Illinois Tollway? *(Check all that apply)*

Check (✓) 1☐ 2☐ 3☐ 4☐ 5 ☐ 6☐ 7☐ 8☐ 9☐ 10 ☐

The Indiana Toll Road?

Check (✓) 1☐ 2☐ 3☐ 4☐ 5 ☐ 6☐ 7☐ 8☐ 9☐ 10 ☐

Developing Illiana through Design Build project delivery?

Check (✓) 1☐ 2☐ 3☐ 4☐ 5 ☐ 6☐ 7☐ 8☐ 9☐ 10 ☐

Please discuss your rating for each.

___

___

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___

___

What are your views on developing Illiana as a Public-Private Partnership (P3)?

___

___

___

___

Recognizing that there is a significant amount of farmland in the defined study area, what are your views regarding land use impact?

___

___

___

Q10. Are you aware of any right-of-way issues, positive or negative, in the study area that we need to consider?

Positive___

___

___

___

___

Negative___

___

Are you aware of any environmental “red flags” that we will need to consider?

Q11. Do you know of any existing or planned intermodal facilities within or in close proximity to the study area?

Are you aware of any major freight generating industries that exist or are planned for the study area?

If so, please elaborate.

Q12. How do you think the proposed Illiana Expressway could best serve truck traffic (dedicated truck lanes, truck only facility, etc.)?

Q13. Do you know of any other projects planned or proposed that may impact Illiana?

Q14. Are there any other thoughts that you would like to share that would assist our team in preparing this Feasibility Study?

Thank you for your participation.

C. Socioeconomic Trends and Forecast Update

C.1 Importance of Data Updates and Revised Forecasts for the Study Area

As part of its early analysis and progress reports, ACG cited the fact that metropolitan area growth has shifted and is focused on outward development, both in Illinois and Indiana. Over the past four years, Lake and Porter Counties have been growing at faster rates than the Chicago CSA – with a substantial part of this growth in the Illiana Study Area. However, it was not until a comparison of the detailed data of the Tetrad socio-economic estimates for 2007 with the NIRPC 2030 forecasts, that it became obvious that differences between actual and forecasted growth were significant.

The 2007 estimates for both Northeastern Illinois (6-county) and Kankakee County are in line with their 2030 forecasts. However, due to restrictions placed on the Northwestern Indiana Regional Planning Commission (NIRPC), their 2030 forecast levels were capped, causing an underestimation of growth in the Northwestern Indiana region. In 12 of 23 townships in Lake and Porter Counties, for instance, 2030 forecasted growth already had been achieved by 2007. In seven of the eight townships, totally or partially in the Illiana Study Area, 2030 forecasts had been reached by 2007.

While NIRPC does not prepare an employment forecast, a generalized employment forecast has been prepared for the Northwestern Indiana Commuter Transit District (NICTD), relevant to its West Lake Corridor Expansion Study; and forecasts, at the county level, are available from Woods & Poole Economics (W&P). These employment forecasts also were compared with the 2006 and 2007 estimates. Since one of the major objectives of this analysis is to determine economic impacts, an accurate employment estimate and forecast are essential.

This report describes the comparison and analysis of the estimated and forecasted growth in the Illiana Expressway; in its region of influence, as a whole; and in Lake and Porter Counties, specifically, due to the substantial real and implied differentials in actual and NIRPC-forecasted growth of population and households.

Based on past growth and existing trends (1990-2000, and 2000-2007), in townships of Lake and Porter Counties; on 2030 forecasts for the region made by NIRPC; and for Lake and Porter County, as a whole, made by W&P and others, ACG prepared an updated and expanded 2030 forecast (of population, households and jobs) to be added to the adopted 2030 forecasts of Northeastern

Illinois and Kankakee County. This expanded forecast is intended as the input for a Baseline forecast for the Illiana Expressway analysis. As such, it required a detailed review by the Study Team, NIRPC and the client, INDOT.

C.2 Study Findings: Changes in Population and Employment (1990-2000 and 2000-2007) for the Chicago CSA

Population

Over the periods 1990 to 2000 and 2000 to 2007, the Chicago region, including one Wisconsin, ten Illinois, and five Indiana Counties, experienced considerable shifts in growth. The central counties of Cook and DuPage reached maturity, with the former experiencing a loss of nearly 100,000 persons between 2000 to 2007, and with DuPage's annual growth rate dropping to less than one-third its 1990-2000 rates. On the other hand, growth rates in Will, Kendall, Grundy and Kane Counties soared; Will County nearly doubled its population between 1990 and 2007.

Lake and Porter Counties, in Indiana, shared this increased population growth rate, but to a lesser degree. In general, the population growth of the 1990-2000 period for the CSA was at the fringes of the urban area, but concentrated at its northwest quadrant. By 2000-2007, the development focus had shifted to the southwest quadrant, coupled with a leap into Northwest Indiana.

Figure C.1 shows 1990-2000 Population Change by Urban Block for the CSA.

Employment

While population growth has tended to cluster at the urban fringes, employment tends to remain within the mature central counties of Cook, Lake (IL) and DuPage. With the preponderance of Cook County's jobs located in the Chicago Central Area and the suburban northwest, jobs in the Chicago CSA continue to be concentrated in the northern half of the region.

Although recent job growth in Will County has been strong (approximately one job for each new household), job growth has not kept pace with population growth in the southern half of the metropolitan region, including Kendall, Will, Lake (IN), and Porter Counties and the southern half of Cook County. Table C.1, below, shows the 2007 jobs-per-household ratios (total county jobs divided by total county households) for the 16 counties studied and for the CSA, total, and Illinois and Indiana subtotals. The average for the Chicago CSA is 1.642 jobs per household. The average for Illinois counties is 1.684; the average for Indiana counties is 1.254. The latter ratios indicate a net job commute from Northwest Indiana into the job-centers of Cook and DuPage Counties.

Table C.1 Jobs-per-Household Ratios (2007) Chicago CSA Counties

Cook	1.73
DeKalb	1.34
DuPage	2.12
Grundy	1.44
Kane	1.53
Kankakee	1.38
Kendall	0.79
Lake (IL)	1.78
McHenry	1.21
Will	1.07
Jasper	1.57
Lake (IN)	1.21
La Porte	1.37
Newton	1.02
Porter	1.28
Kenosha	1.47
Chicago CSA	1.64
Illinois Counties	1.68
Indiana Counties	1.25

Source: Calculations by ACG, based on 2007 Tetrad estimates.

Tables C.2, C.3 and C.4, following, show the 1990, 2000 and 2007 statistics for population, households and employment, respectively, and their change, for each of the above-cited counties. The following section describes these changes in greater detail, with an emphasis on the Minor Civil Division (MCD's) of the Study Area.

Table C.2 Population Change Chicago CSA Counties (1990, 2000, 2007)

	1990 Pop	2000 Pop	2007 Pop Tetrad	Pop # Change 90-00	Pop # Change 00-07	Pop Avg% Change 90-00	Pop Avg% Change 00-07
Cook	5,109,524	5,377,536	5,278,157	268,012	-99,379	0.51%	-0.27%
DeKalb	78,350	89,290	100,470	10,940	11,180	1.32%	1.70%
DuPage	785,770	906,740	933,488	120,970	26,748	1.44%	0.42%
Grundy	32,490	37,680	46,438	5,190	8,758	1.49%	3.03%
Kane	319,490	407,700	500,408	88,210	92,708	2.47%	2.97%
Kankakee	96,560	103,890	109,248	7,330	5,358	0.73%	0.72%
Kendall	39,510	55,190	87,832	15,680	32,642	3.40%	6.86%
Lake (IL)	520,190	648,800	717,278	128,610	68,478	2.23%	1.44%
McHenry	185,410	261,690	315,673	76,280	53,983	3.51%	2.72%
Will	359,460	508,340	681,781	148,880	173,441	3.53%	4.28%
Jasper	24,910	30,200	32,381	5,290	2,181	1.94%	1.00%
Lake (IN)	476,460	484,680	496,978	8,220	12,298	0.17%	0.36%
LaPorte	107,260	110,210	110,954	2,950	744	0.27%	0.10%
Newton	13,570	14,550	14,499	980	-51	0.70%	-0.05%
Porter	129,320	147,250	161,323	17,930	14,073	1.31%	1.31%
Kenosha	128,770	150,080	161,460	21,310	11,380	1.54%	1.05%
CSA	8,407,044	9,333,826	9,748,368	926,782	414,542	1.05%	0.62%
Illinois Counties	7,526,754	8,396,856	8,770,773	870,102	373,917	1.10%	0.62%
Indiana Counties	751,520	786,890	816,135	35,370	29,245	0.46%	0.52%

Sources: 1990, 2000 – U.S. Census.
2007 – Tetrad.

Table C.3 Household Change Chicago CSA Counties (1990, 2000, 2007)

	1990 Hhd	2000 Hhd	2007 Hhd Tetrad	Hhd # Change 90-00	Hhd # Change 00-07	Hhd Avg% Change 90-00	Hhd Avg% Change 00-07
Cook	1,886,243	1,975,397	1,933,951	89,154	-41,446	0.46%	-0.30%
DeKalb	26,500	31,850	35,881	5,350	4,031	1.86%	1.72%
DuPage	280,160	326,800	337,845	46,640	11,045	1.55%	0.48%
Grundy	12,010	14,370	17,927	2,360	3,557	1.81%	3.21%
Kane	107,410	135,150	164,770	27,740	29,620	2.32%	2.87%
Kankakee	34,730	38,260	40,602	3,530	2,342	0.97%	0.85%
Kendall	13,330	19,050	30,558	5,720	11,508	3.64%	6.98%
Lake (IL)	174,550	217,920	241,426	43,370	23,506	2.24%	1.47%
McHenry	63,170	90,040	108,525	26,870	18,485	3.61%	2.70%
Will	117,310	169,740	230,398	52,430	60,658	3.76%	4.46%
Jasper	8,560	10,750	11,714	2,190	964	2.30%	1.23%
Lake (IN)	171,520	181,950	190,152	10,430	8,202	0.59%	0.63%
LaPorte	38,650	41,160	42,142	2,510	982	0.63%	0.34%
Newton	4,860	5,350	5,381	490	31	0.97%	0.08%
Porter	45,340	54,920	61,600	9,580	6,680	1.94%	1.65%
Kenosha	47,190	56,320	61,260	9,130	4,940	1.78%	1.21%
CSA	3,031,533	3,369,027	3,514,132	337,494	145,105	1.06%	0.60%
Illinois Counties	2,715,413	3,018,577	3,141,883	303,164	123,306	1.06%	0.57%
Indiana Counties	268,930	294,130	310,989	25,200	16,859	0.90%	0.80%

Sources: 1990, 2000 – U.S. Census.
2007 – Tetrad.

Table C.4 Employment Change Chicago CSA Counties (1990, 2000, 2007)

	1990 Emp W&P	2000 Emp W&P	2007 Emp Adj Tetrad	Emp # Change 90-00	Emp # Change 00-07	Emp Avg% Change 90-00	Emp Avg% Change 00-07
Cook	3,134,631	3,351,990	3,358,099	217,359	6,109	0.67%	0.03%
DeKalb	40,360	47,460	48,232	7,100	772	1.63%	0.23%
DuPage	509,230	702,580	717,974	193,350	15,394	3.27%	0.31%
Grundy	16,260	20,030	25,781	3,770	5,751	2.11%	3.67%
Kane	175,450	241,770	252,256	66,320	10,486	3.26%	0.61%
Kankakee	45,910	54,560	56,279	8,650	1,719	1.74%	0.44%
Kendall	15,300	21,670	24,140	6,370	2,470	3.54%	1.55%
Lake (IL)	298,890	418,840	428,581	119,950	9,741	3.43%	0.33%
McHenry	83,760	111,700	130,854	27,940	19,154	2.92%	2.29%
Will	124,980	186,140	248,570	61,160	62,430	4.06%	4.22%
Jasper	11,610	15,940	18,395	4,330	2,455	3.22%	2.07%
Lake (IN)	230,870	244,910	229,548	14,040	-15,362	0.59%	-0.92%
LaPorte	54,020	60,390	57,819	6,370	-2,571	1.12%	-0.62%
Newton	5,540	5,540	5,505	0	-35	0.00%	-0.09%
Porter	58,060	70,660	78,606	12,600	7,946	1.98%	1.53%
Kenosha	52,860	68,860	89,777	16,000	20,917	2.68%	3.86%
CSA	4,857,731	5,623,040	5,770,416	765,309	147,376	1.47%	0.37%
Illinois Counties	4,444,771	5,156,740	5,290,766	711,969	134,026	1.50%	0.37%
Indiana Counties	360,100	397,440	389,873	37,340	-7,567	0.99%	-0.27%

Sources: 1990, 2000 – Woods & Poole Economics.
2007 – Tetrad.

C.3 Data Availability, Sources and Differences for Estimates and Forecasts beyond 2000

Data Estimates and Updates

The primary source of data used to update U.S. Census data from 2000, during this phase of Illiana Study, was PCensus Data Base, using 2002, 2006 and 2007 Claritas Business Facts by block groups. It was purchased from Tetrad Computer Applications, Ltd. ACG used the data in its block group form and aggregated it into Minor Civil Division (MCD) for comparative purposes. Official Census updates to 2006 by MCD were downloaded from the Census Web Page. Data was obtained for the sixteen (16) counties shown in Tables C.1 to C.4 in the previous section.

Block group and MCD data was examined, in general, for the entire 16-county region; and, in greater detail, for the following areas:

- The Study Area;
- The entire counties of Will, Kankakee, Lake and Porter; and
- Adjacent or proximate areas of Cook, DuPage, and Kane counties, in Illinois; and La Porte County, in Indiana.

Some minor differences in the Official Census and Tetrad estimates for 2006 were observed and mapped for the above three areas. These reflect long-term institutional biases: the Census traditionally assigns higher population growth to fast-growing areas and lower growth or greater losses to mature areas; Tetrad's biases are in the opposite direction.

Comparison of Estimates and Forecasts

In the case of data for the ten Illinois counties, it was determined that 2002, 2006, and 2007 estimates fit the 2000 to 2030 forecast profiles for both the counties, as a whole, and their individual MCD's. Consequently, the estimates were accepted, as were the officially-adopted 2030 forecasts for the Counties and forecasts by section and quarter-section.

However, a review and comparison of the 2006/2007 estimates for Indiana's MCD's concluded that these estimates did not fit their 2000 to 2030 forecast profiles. In 12 of 23 MCD's, the 2007 estimated population already had reached or exceeded the population forecast for 2030. Some of these increases were offset by losses in North and Calumet Townships, where the NIRPC 2030 forecasts had indicated growth. These mature townships may, eventually, stabilize or show modest growth; however, the fast-growing townships required forecast revisions. These revisions would increase population and household forecasts for both Lake and Porter counties, overall; and increase them even more so for the Study Area, specifically.

These detailed data for the study area and their recommended changes are shown in the following sections.

Changes in Population, Households and Employment in MCDs (Townships) of the Study Area and Comparison with Study Area Counties

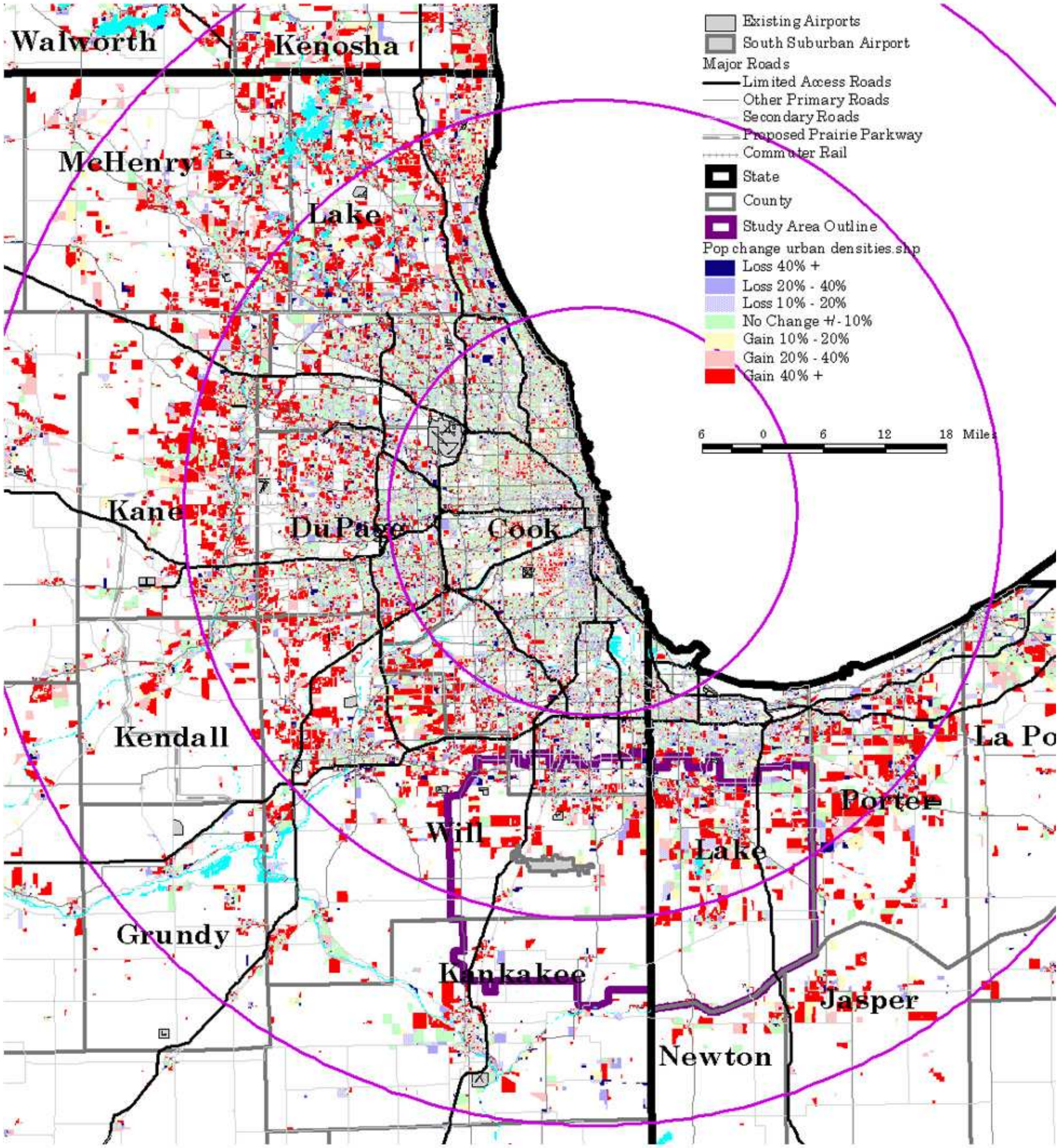
Figures C.1 and C.2, following, show the numerical population change between 2000 and 2007 in the Study Area and its environs, by MCD (township) and Census block group. Both exhibits use 2000 Census data and 2007 Tetrad data. It is evident, from these exhibits, that population growth is in a continuous band along the fringes of the urban area. Major increases in Southeast Kane and Northwest Will have spread – at lesser intensities – past Far-Southern Cook and Eastern Will into Central Lake and Porter Counties.

If the data is divided into time segments of 2000-2003 and 2003-2007, (shown in Figures C.3 and C.4), it appears that the Study Area, particularly in Lake County, shows increased gains, as does Porter County. These latter two exhibits show change by percentage rate.

In the Study Area, only a small portion of the Southern-most part of Cook County (Bloom Township) and Northeastern Kankakee have not experienced growth during the 2000-2007 period. The Study Area grew by 40,799 persons over that period, from 298,381 to 339,180. Households grew by 17,033; and jobs grew by 8,227 between 2002 and 2007. The latter (job growth) is half the number of household growth. Due partly to this low number of jobs created and the number lost, approximately 13 percent of these Study Area residents who are employed, work at jobs outside their state of residence; in the Lake County portion of the Study Area, 24.4 percent work outside their state of residence. Table II-5, following the four-referenced exhibits, shows this data for the four county portions and totals that comprise the Study Area.

A larger, more-inclusive table, comparing 2000, 2006, and 2007 Census and Tetrad data for the Study Area, as well as 2030 Forecasts, are discussed in the following section.

Figure C.1 Illiana Expressway Feasibility Study 1990-2000 Percent Population Change by Urban Block Chicago CSA and Adjacent Counties



ACG: The al Chalabi Group, Ltd.,
in association with Cambridge Systematics, Inc.

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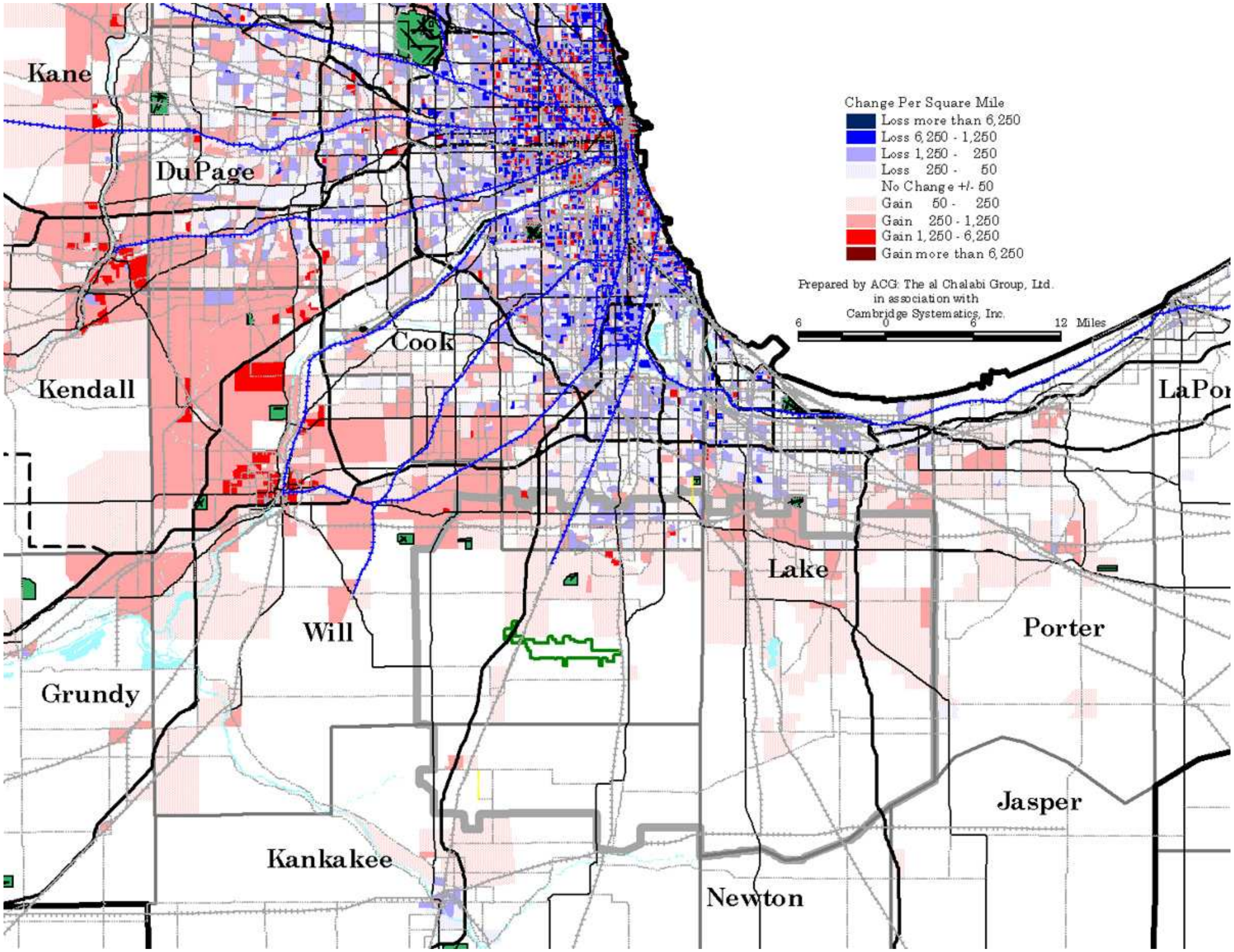
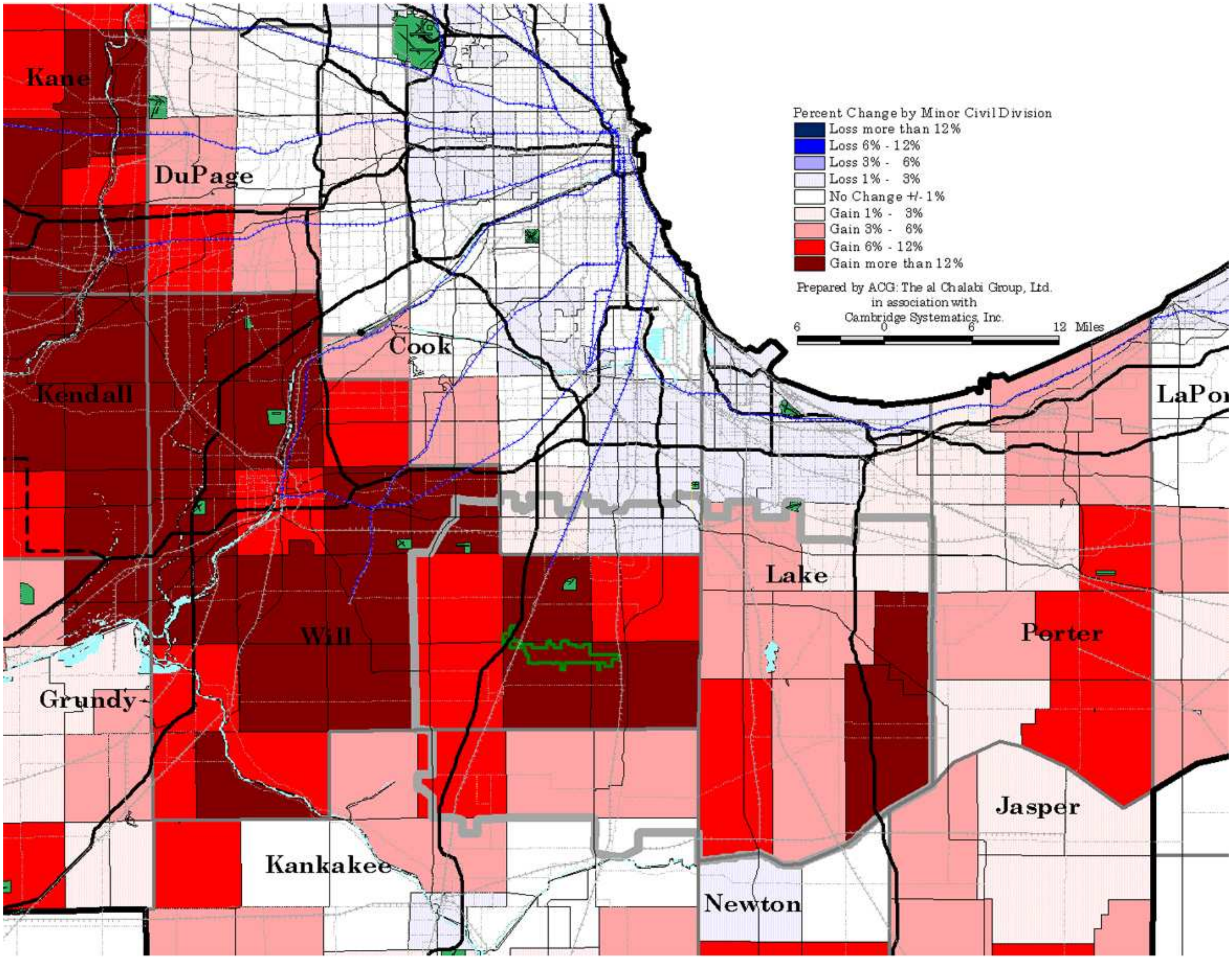
Figure C.2 Illiana Expressway Feasibility Study Population Change Per Square Mile 2000-2007 By Block Group



Source: PCensus Data Base and 2000Census.

Figure C.3 Illiana Expressway Feasibility Study Percent Population Change 2003-2006 By Minor Civil Division (MCD)



Source: US Census Estimates.

Figure C.4 Illiana Expressway Feasibility Study Percent Population Change 2000-2003 By Minor Civil Division (MCD)

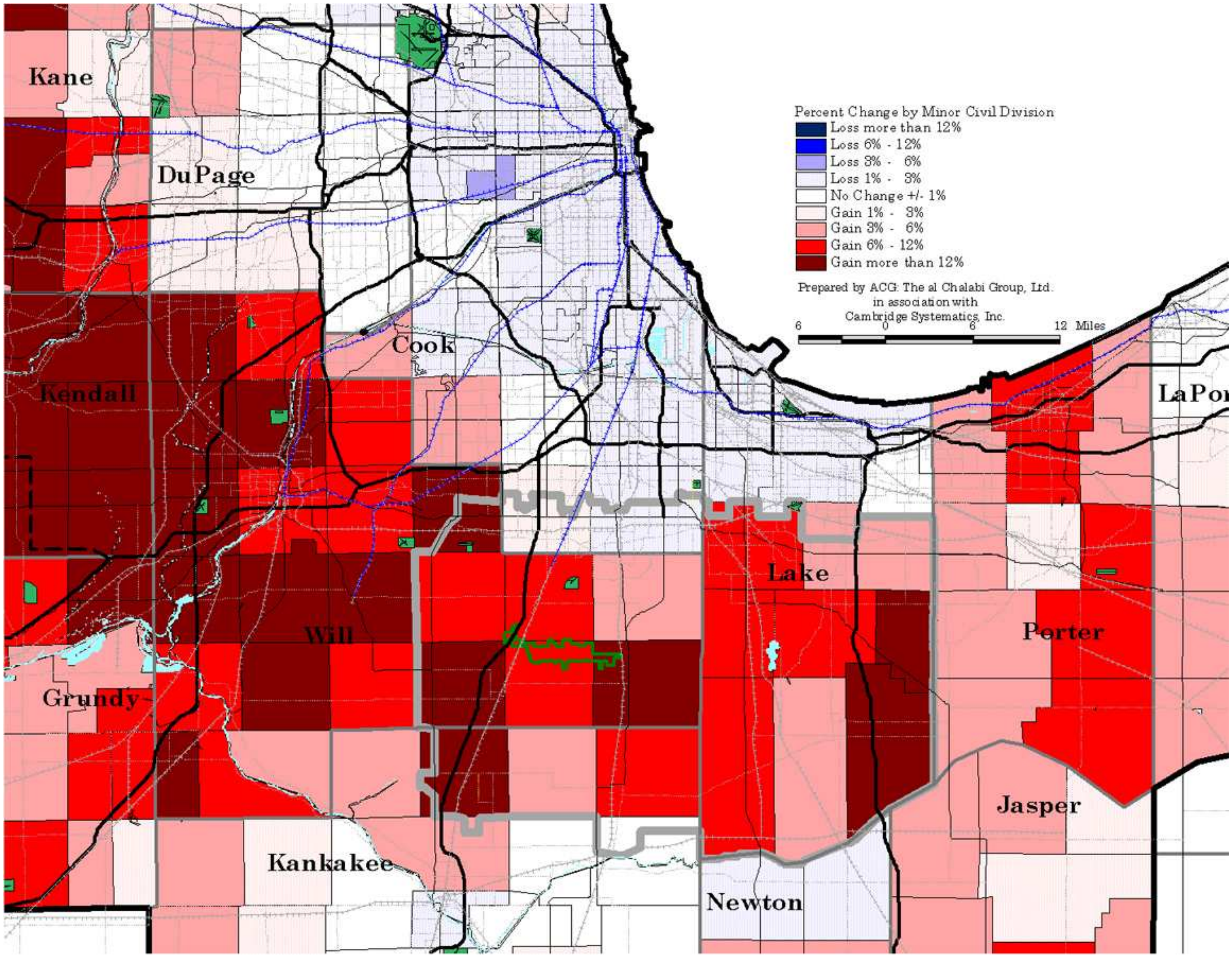


Table C.5 Illiana Study Area Statistics

Variable	Cook	Kankakee	Will	Lake (IN)	Total
Total Population - 2000	96,709	11,613	59,764	130,295	298,381
Total Households - 2000	34,458	4,417	21,624	46,967	107,466
Mean Avg Household Income	53,590	57,353	69,436	66,293	62,485
Total Population - 2002	96,448	11,959	61,838	131,582	301,827
Total Households - 2002	34,451	4,501	22,586	47,971	109,509
Total Employment - 2002	49,728	5,798	24,005	79,506	159,037
Total Population - 2007	96,870	14,150	75,458	152,702	339,180
Total Households - 2007	34,696	5,422	27,768	56,613	124,499
Total Employment - 2007	55,870	6,707	27,169	77,518	167,264
Pop Change - 00 Census 07 Tetrad	161	2,537	15,694	22,407	40,799
Hhd Change - 00 Census 07 Tetrad	238	1,005	6,144	9,646	17,033
Total Emp Change - 02 07 Tetrad	6,142	909	3,164	-1,988	8,227
Worked in state of residence	39,791	5,560	28,651	49,972	123,974
Worked in county of residence	34,186	2,873	9,003	46,745	92,807
Worked outside county of residence	5,605	2,687	19,648	3,227	31,167
Worked outside state of residence	1,296	100	1,044	16,129	18,569

Sources: 2000 U.S. Census
2002, 2007 Tetrad
Worker data from 2000 U.S. Census

Population growth in the Study Area was 13.7 percent between 2000 and 2007; this growth is triple the 4.7 percent for the four counties, shown in Table C.5, as a whole. Only in Will County, is the total County growth higher (at 35.5 percent) than in the Study Area portion of the County (26.3 percent). In the Study Area portion of Lake County, the 22,407 population growth is double that of the County, as a whole (12,414).

C.4 Population and Employment Forecasts (2030) for Lake and Porter Counties and the Illiana Study Area Within Lake

Introduction

Findings shown in the prior sections of this report indicate that 2030 forecasts for all of Lake and Porter Counties and the Study Area, in particular, should be updated and revised. Consequently, the consultants have prepared a revised forecast for population, households and employment for Lake and Porter Counties, based on the 2000 Census and 2007 estimates, the trends of 1990-2000 and 2000-2007, and the original NIRPC 2030 forecasts. Since this data provides the basis for the Baseline forecasts, these forecasts have been discussed with both NIRPC and INDOT. Discussions with NIRPC staff have resulted in small modifications within Lake County; in essence, maintaining the 2007 estimates of households into 2030 for Calumet and North Townships. Minor revisions in the fast-growing townships have been made to compensate and balance the totals. These revisions have been incorporated into the recommended forecasts in Tables C.7 and C.8.

Methodology in Brief

The consultants first forecast 2030 households as a number midway between a 2030 forecast based on the 2000-2007 estimate trend and the NIRPC 2030 forecast. These households were then converted to population based on average household sizes (estimated from 2007 estimates, 2030 NIRPC forecast and W&P 2030 control estimates) for each Township. These mid-level forecasts were then compared with 1990-2000 and 2000-2007 trends to determine consistency. Control totals for the counties were compared with W&P county forecasts and interim year estimates. Forecasts for employment were based on 2002-2007 trends, plus comparison with W&P county forecasts.

Recommended 2030 Forecasts

The recommended updated and revised 2030 forecasts increase overall household and population forecasts for the two counties by approximately 15 percent. However, they increase Study Area forecasts by approximately 44 percent. These comparisons are shown in Table C.6 below, together with the 2007 estimates and ACG forecasts for employment.

Table C.6 2030 Forecast Comparisons Counties and Study Area

Item	2007 Estimates	2030 NIRPC	2030 ACG	Difference	Percent
Lake & Porter County Population	658,301	669,723	770,000	100,277	15.0
Lake County Population	496,978	504,808	557,100	52,292	10.4
Study Area Population	174,239	166,617	240,500	73,883	44.3
Lake & Porter County Households	251,752	263,397	303,000	39,603	15.0
Lake County Households	190,152	190,152	220,300	30,148	15.9
Study Area Households	64,982	64,877	93,800	28,923	44.6
Lake & Porter County Employment	301,362	-	419,333	-	-
Lake County Employment	227,516	-	311,556	-	-
Study Area Employment	84,749	-	124,738	-	-

Tables C.7, C.8 and C.9, following, show various Census and trends data, along with 2030 forecasts by NIRPC, and recommended revised forecasts for all 23 Townships in Lake and Porter Counties and the eight townships, all or partially in the Illiana Study Area. The NIRPC and recommended 2030 forecasts have been highlighted.

In the above-cited Tables C.7, C.8 and C.9, townships all or partially included in the Illiana Study Area are shown in bold. In Tables C.7 and C.8, townships whose growth has outstripped the NIRPC forecasts are highlighted.

It should be noted, that the Tetrad estimates can be considered conservative, due to their long-term biases favoring mature areas.

Table C.7 Detailed Estimates and Forecasts: Recommended 2030 Population Forecasts

MCD Name	Pop 00 Census	Pop 00 NIRPC	Pop 02 Census	Pop 02 Tetrad	Pop 06 Census	Pop 06 Tetrad	Pop 07 Tetrad	Pop 30 NIRPC	Pop 30 W&P	Pop 30 NICTD	Ratio 00-07/ NIRPC 00-30	Pop 30 00-07 Trend	Pop 30 90-07 Trend	Pop 30 Recom'd	NIRPC Rate Applied to 07
Calumet	127,800	128,035	125,385	125,404	122,009	123,422	122,487	131,614			-	106,537	100,420	117,700	125,104
Cedar Creek	10,649	10,649	11,002	10,691	11,767	11,655	11,941	11,079			3.005	17,396	17,482	15,900	12,309
Center (L)	26,191	26,191	26,978	25,985	29,795	29,112	30,124	29,247			1.287	47,704	40,131	41,600	32,784
Eagle Creek	1,695	1,695	1,915	1,712	2,250	2,262	2,389	1,793			7.082	7,378	4,779	4,800	2,494
Hanover	8,692	8,692	9,002	8,999	10,149	9,761	10,163	9,110			3.519	16,987	15,712	13,900	10,536
Hobart	39,636	39,427	40,228	38,764	40,887	40,954	40,912	41,083			0.882	45,401	43,775	46,800	42,223
North	165,656	165,656	163,212	164,853	159,026	160,466	159,340	165,494			-	140,234	149,620	154,900	159,221
Ross	38,685	38,685	39,448	38,981	41,780	41,320	41,932	42,747			0.799	54,646	54,170	50,500	45,268
St. John	53,701	53,675	55,495	54,336	61,976	60,594	62,745	59,066			1.686	104,636	108,766	85,100	67,522
West Creek	4,981	4,981	5,238	4,951	5,727	5,707	5,900	5,363			2.406	10,291	9,293	8,900	6,244
Winfield	6,878	6,878	7,586	7,093	8,836	8,882	9,045	8,212			1.624	22,245	20,241	17,000	10,362
Boone	5,884	5,884	5,964	5,973	6,397	6,268	6,434	6,124			2.292	8,630	9,278	8,000	6,634
Center (P)	38,186	38,290	38,871	38,655	40,250	39,981	40,538	41,714			0.667	49,335	54,432	49,600	43,289
Jackson	4,592	4,592	4,722	4,849	5,097	5,361	5,599	4,820			4.417	10,741	10,725	9,100	5,811
Liberty	6,727	6,727	6,998	6,916	7,582	7,519	7,734	8,426			0.593	12,231	11,574	11,400	9,191
Morgan	2,658	2,658	2,861	2,755	3,315	3,249	3,458	2,901			3.292	8,209	6,816	6,400	3,698
Pine	2,853	2,853	2,941	2,730	3,147	2,771	2,761	2,868			-	2,479	2,721	3,000	2,772
Pleasant	3,759	3,759	4,028	3,819	4,627	4,489	4,686	4,011			3.679	9,668	7,637	8,100	4,925
Portage	43,956	43,956	44,976	43,806	47,098	46,715	47,285	51,910			0.419	60,103	57,485	60,100	53,716
Porter	8,459	8,459	8,642	8,584	9,235	9,161	9,394	9,436			0.957	13,257	13,214	12,300	10,215
Union	8,166	8,166	8,320	8,307	8,789	8,710	8,902	9,108			0.781	11,820	11,936	11,000	9,679
Washington	3,425	3,321	3,663	3,521	4,092	4,025	4,132	4,270			0.837	7,655	6,066	6,300	5,010
Westchester	18,133	18,133	18,650	18,369	20,476	19,744	20,400	19,327			1.899	30,042	29,485	27,600	21,422
Study Area MCD's	151,472	151,446	156,664	152,748	172,280	169,293	174,239	166,617			1.503	281,284	270,576	237,700	187,518
Lake County	484,564	484,564	485,489	481,769	494,202	494,135	496,978	504,808	539,940		0.613	573,455	564,391	557,100	514,065
Porter County	146,798	146,798	150,636	148,284	160,105	157,993	161,323	164,915	212,900		0.802	224,170	221,371	212,900	176,363
Grand Total	631,362	631,362	636,125	630,053	654,307	652,128	658,301	669,723	752,840	730,000	0.702	797,626	785,762	770,000	690,428

Bold letters denote Indiana MCD's totally or almost totally within Study Area
Highlights denote areas outstripping NIRPC forecasts by 2007

Table C.8 Detailed Estimates and Forecasts: Recommended 2030 Household Forecasts

MCD Name	Hhd 00 Census	Hhd 00 NIRPC		Hhd 02 Tetrad		Hhd 06 Tetrad	Hhd 07 Tetrad	Hhd 30 NIRPC	Hhd 2030 W&P		Ratio 00-07/ NIRPC 00-30	Hhd 30 02- 07 Trend		Hhd 30 Recom'd	NIRPC Rate Applied to 07
Calumet	48,006	47,975		47,376		47,201	46,969	52,066			-	43,717		47,000	50,010
Cedar Creek	3,737	3,767		3,820		4,234	4,346	4,103			1.664	7,137		5,900	4,640
Center (L)	9,684	9,670		9,717		11,065	11,493	11,500			0.996	20,175		16,600	13,126
Eagle Creek	659	641		651		878	929	705			5.870	2,871		1,900	999
Hanover	3,068	3,072		3,204		3,541	3,694	3,592			1.195	6,799		5,500	4,165
Hobart	14,994	14,982		14,860		15,987	16,003	16,033			0.971	19,821		18,300	16,857
North	63,496	63,551		63,481		62,489	62,198	65,688			-	58,117		62,200	63,795
Ross	14,753	14,755		14,976		16,090	16,357	17,373			0.612	22,960		20,600	18,539
St. John	19,206	19,216		19,635		22,162	22,985	22,751			1.066	41,472		33,000	26,162
West Creek	1,754	1,766		1,784		2,075	2,150	1,995			1.643	4,197		3,300	2,361
Winfield	2,232	2,230		2,310		2,964	3,028	2,858			1.272	8,249		6,000	3,662
Boone	2,191	2,186		2,243		2,395	2,459	2,387			1.367	3,593		3,100	2,631
Center (P)	14,721	14,747		14,989		15,822	16,067	17,065			0.574	21,418		20,100	17,970
Jackson	1,592	1,546		1,655		1,876	1,967	1,679			4.310	3,941		3,200	2,095
Liberty	2,516	2,504		2,592		2,878	2,962	3,367			0.524	5,064		4,500	3,717
Morgan	899	894		934		1,126	1,201	1,039			2.157	3,111		2,300	1,348
Pine	1,129	1,182		1,148		1,188	1,184	1,205			0.724	1,384		1,300	1,202
Pleasant	1,341	1,361		1,401		1,677	1,751	1,525			2.228	4,207		3,100	1,911
Portage	16,318	16,290		16,418		17,758	17,971	20,023			0.446	24,675		23,200	21,051
Porter	2,966	2,951		3,029		3,285	3,370	3,464			0.811	5,127		4,500	3,811
Union	2,803	2,782		2,879		3,051	3,118	3,353			0.573	4,424		4,000	3,598
Washington	1,233	1,178		1,269		1,478	1,517	1,761			0.538	2,998		2,500	2,065
Westchester	7,012	7,028		7,142		7,765	8,033	7,865			1.197	12,556		10,900	8,757
Study Area MCD's	55,093	55,117		56,097		63,009	64,982	64,877			1.011	113,861		92,800	73,654
Lake County	181,589	181,625		181,814		188,686	190,152	198,664	209,070		0.501	235,516		220,300	204,317
Porter County	54,721	54,649		55,699		60,299	61,600	64,733	82,700		0.687	92,498		82,700	70,153
Grand Total	236,310	236,274		237,513		248,985	251,752	263,397	291,770		0.570	328,014		303,000	274,470

Bold letters denote Indiana MCD's totally or almost totally within Study Area
Highlights denote areas outstripping NIRPC forecasts by 2007

Table C.9 Detailed Estimates and Forecasts: Recommended 2030 Employment Forecasts

MCD Name		Emp 00 NIRPC		Emp 02 Tetrad		Emp 06 Tetrad	Emp 07 Tetrad		Emp 2030 W&P	NICTD		Emp 30 02-07 Trend	Emp 30 02-07 Adj Trend	Emp 30 Recom'd	
Calumet		42,852		49,393		48,835	51,148					60,059	62,500	62,500	
Cedar Creek		3,251		2,985		2,991	2,894					2,510	5,332	4,000	
Center (L)		10,222		10,416		12,066	12,503					28,964	18,018	21,000	
Eagle Creek		158		248		583	629					45,495	2,231	2,400	
Hanover		1,644		2,470		2,347	2,496					2,619	5,266	5,000	
Hobart		9,339		10,379		11,744	12,885					34,846	12,702	14,000	
North		79,006		88,312		78,611	78,534					45,775	79,695	80,000	
Ross		38,433		48,437		40,231	40,472					17,711	53,920	65,000	
St. John		13,855		19,494		20,847	22,229					40,664	37,099	37,000	
West Creek		1,416		2,081		1,857	1,865					1,127	3,950	3,750	
Winfield		1,145		1,371		1,880	1,861					7,589	6,674	6,500	
Boone		872		1,658		1,787	1,756					2,287	2,588	2,600	
Center (P)		23,821		24,850		26,765	30,136					73,178	28,588	42,600	
Jackson		247		1,086		418	425					6	3,148	3,200	
Liberty		287		1,153		1,365	1,274					2,016	3,013	3,000	
Morgan		117		341		368	288					132	2,250	2,250	
Pine		96		1,291		315	508					7	1,203	1,500	
Pleasant		668		1,128		937	1,025					660	3,175	3,100	
Portage		13,274		15,870		16,545	15,716					15,027	21,574	21,600	
Porter		179		850		795	755					438	2,486	2,500	
Union		415		1,325		1,179	1,085					433	2,555	2,500	
Washington		2,293		3,812		4,013	4,678					11,996	5,259	8,000	
Westchester		11,857		11,448		14,511	16,200					80,007	15,534	21,600	
Study Area MCD's		70,124		87,502		82,802	84,949					146,679	132,489	144,650	
Lake County		201,321		235,586		221,992	227,516		308,550	300,000		287,360	287,387	301,150	
Porter County		54,126		64,812		68,998	73,846		107,030	85,000		186,186	91,372	114,450	
Grand Total		255,447		300,398		290,990	301,362		415,580	385,000		473,546	378,759	415,600	

Bold letters denote Indiana MCD's totally or almost totally within Study Area.

Corroboration of Recommended Forecasts by Woods & Poole Forecasts for Counties

Many regional planning agencies, as well as state Departments of Transportation, use Woods and Poole, Economics forecasts to augment or to corroborate their forecasts of households, population, jobs and income. ACG has found that, in the case of large metropolitan areas or counties undergoing economic change, it is instructive to plot the forecasts, year by year, to discern significant trends. For instance, rapidly-growing and maturing areas often reach saturation while trends forecasts continue to show a population growth that can no longer be accommodated. Trends data also lags behind the conversion of developable land from residential to commercial.

In the case of regions or counties that have new population growth that outstrips losses in declining areas, forecast trends often lag behind the development on the ground. Lake County, Indiana, has a population growth that represents both factors:

- It is beginning to accommodate part of the regional growth that can no longer be accommodated in DuPage and Cook counties.
- The accelerating growth of townships in its midsection more than compensates for the moderating declines of its mature areas.

Figures C.5 and C.6, following, show actual population growth and a series of forecasts (1993, 1997, 2001, 2005 and 2006) by W&P for Lake and Porter Counties, respectively. These graphs indicate that Lake County has exhibited a reversal of its 1970-1990 population decline, with significant growth over the 1990-2007 period. Furthermore, W&P forecasts, in each succeeding period, have shown increased growth rates; this reflects the actual rate increases shown on the ground, as Lake County begins to attract and absorb larger portions of the growth that cannot be accommodated by Cook and DuPage counties, in Illinois. Porter County shows a growing population, both on the ground and in the W&P forecasts.

Figure C.5 Lake County: W&P Population Forecasts 1993-2006 Series

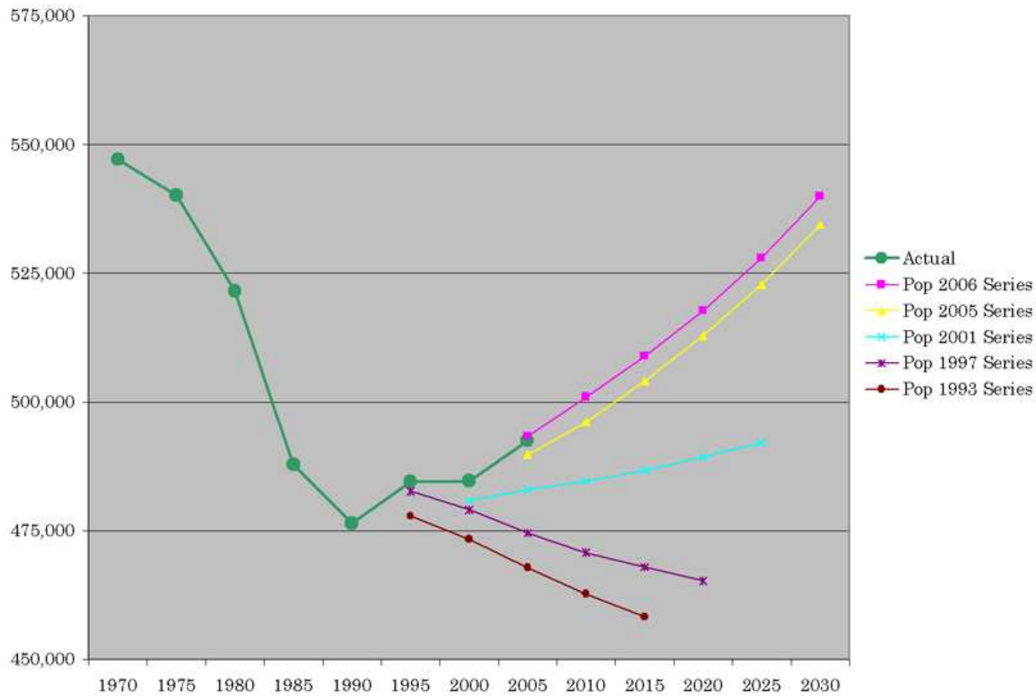
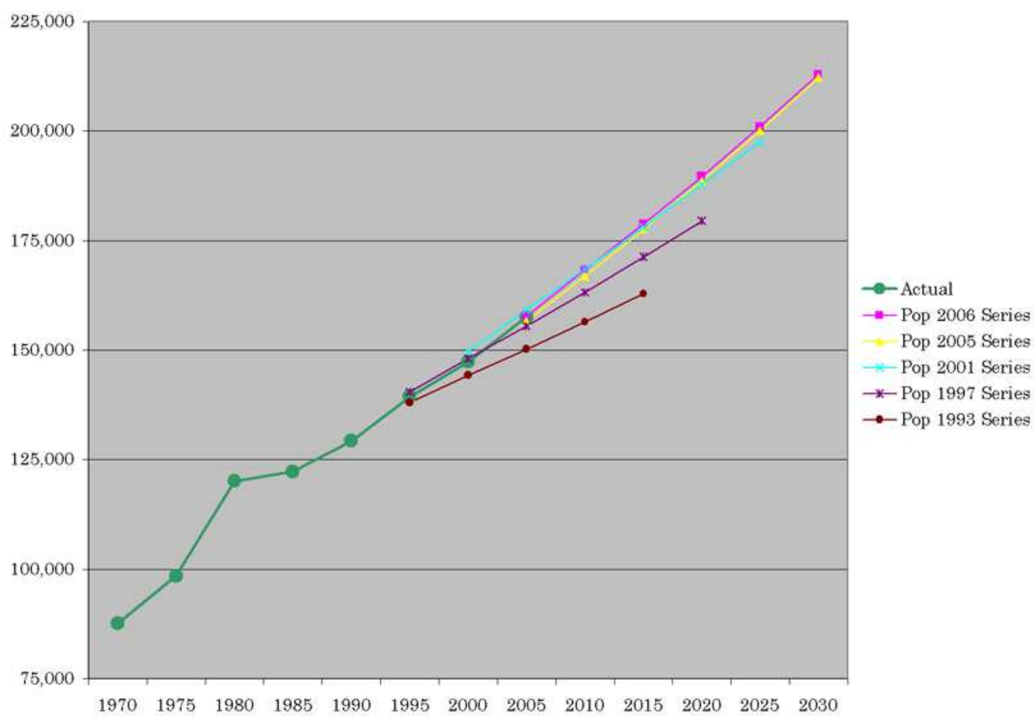


Figure C.6 Porter County: W&P Population Forecasts 1993-2006 Series



Figures C.7 and C.8, following, show actual employment growth and the same series of forecasts by W&P for Lake and Porter Counties, respectively. With the exception of a substantial loss in the early 1980's, Lake County's employment has grown at moderate rates since 1985. These increases have restored the county's jobs in 2007 to that of their 1980 level. W&P forecasts are for continued growth, but with lowered rates with each of four subsequent forecasts. The latest forecast (2006) shows a slight improvement over 2005. The actual employment growth of Porter County has been fairly consistent from 1970 to 2007, again with latter forecasts lower than the former.

As was mentioned earlier, population growth has occurred at the urban fringe, but employment growth has remained within the mature central counties. Northwest Indiana, and Lake and Porter Counties in particular, have become part of the suburban periphery of the Chicago Metropolitan Area; and is functioning in a manner similar to that of Will, Kendall, Grundy and Kane Counties, in Illinois. Consequently, while industrial/commercial enterprises are outbidding residential development in Cook and DuPage Counties, employment in the periphery is limited to a more-supportive, non-competitive function.

Figure C.7 Lake County: W&P Employment Forecasts 1993-2006 Series

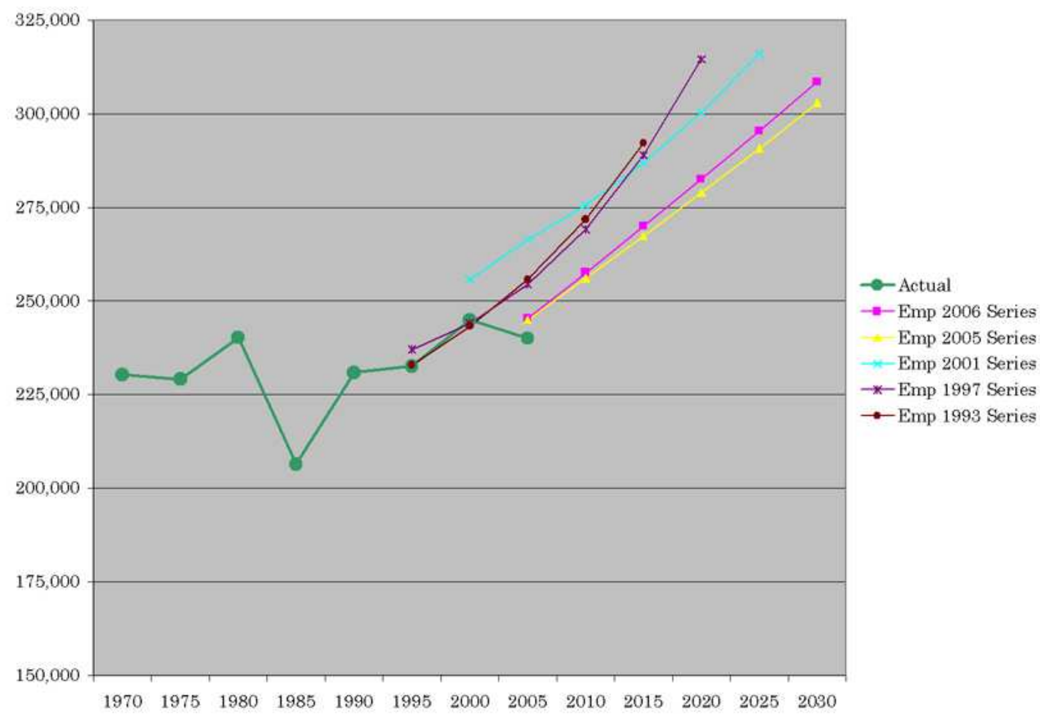
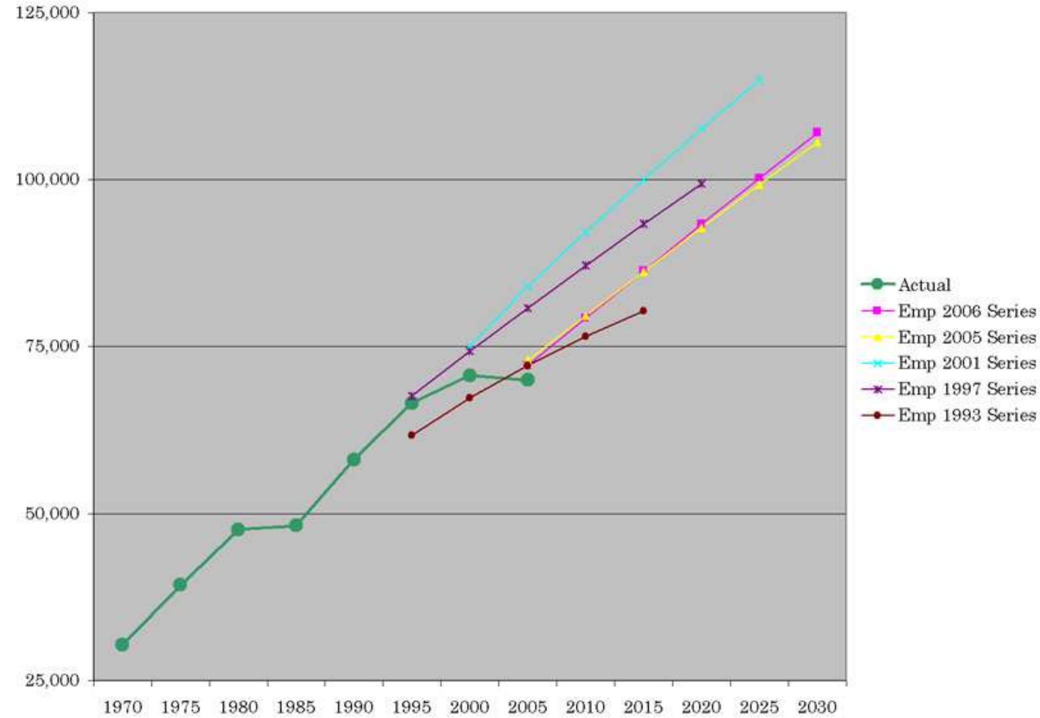


Figure C.8 Porter County: W&P Employment Forecasts 1993-2006 Series



C.5 COORDINATION EFFORTS

Introduction

Given the major differences in the socio-economic forecasts, the consultant team discussed the findings with INDOT and, subsequently, in meetings with NIRPC research staff. It was determined, in these discussions, that the 2007 estimates make a persuasive argument to increase the forecasts to those recommended. Consequently, the consultant team, with concurrence from the client, began a review and coordination process to update and increase the forecasts for Lake and Porter Counties.

Review with NIRPC Staff and Revision of Township Forecasts

The regional agency, NIRPC, is the repository of the latest information regarding post-2000 construction and development proposals in the region, many of which are of a confidential nature. NIRPC's baseline forecasts are driven by these local plans and developer activities, as well as professional planning judgments in regard to existing and planned infrastructure and holding capacities of existing units of government.

Discussions with NIRPC resulted in adjustments making modest population increases and decreases for individual townships within Lake and Porter Counties. However, both the two-county 2030 population forecast of 770,000 and the Study Area forecast of 237,700 remained unchanged. Household forecasts were adjusted to reflect the revised population for townships. Employment totals for the two counties were reduced from 415,600 to 400,000 and from 144,650 to 140,000 for the Study Area. For its employment forecast revision, ACG coordinated with the Northwest Indiana Commuter Transit District (NICTD), as well as with NIRPC. NICTD, as part of its commuter rail project planning, had retained a consultant (Policy Analytics, LLC) to estimate and forecast job growth in the region. These discussions resulted in the modest reductions, previously stated. These revised forecasts are shown on Tables C.10, C.11 and C.12.

Table C.10 Lake and Porter Counties, Indiana, Population Trends and Forecasts

MCD Name	Population 2000 Census	Population 2000 NIRPC	Population 2006 Census	Population 2006 Tetrad	Population 2007 Tetrad	Old (Pre- Illiana) NIRPC Population 2030	Population 2030 (Based on 2000-2007 Trend)	Population 2030 (Based on 1990-2007 Trend)	Pop 2030 (Old NIRPC Rate Applied to 2007)	New NIRPC (Illiana) Population 2030
Calumet	127,800	128,035	122,009	123,422	122,487	131,614	106,537	100,420	125,104	117,700
Cedar Creek	10,649	10,649	11,767	11,655	11,941	11,079	17,396	17,482	12,309	15,900
Center (Lake)	26,191	26,191	29,795	29,112	30,124	29,247	47,704	40,131	32,784	41,600
Eagle Creek	1,695	1,695	2,250	2,262	2,389	1,793	7,378	4,779	2,494	4,800
Hanover	8,692	8,692	10,149	9,761	10,163	9,110	16,987	15,712	10,536	13,900
Hobart	39,636	39,427	40,887	40,954	40,912	41,083	45,401	43,775	42,223	46,800
North	165,656	165,656	159,026	160,466	159,340	165,494	140,234	149,620	159,221	154,900
Ross	38,685	38,685	41,780	41,320	41,932	42,747	54,646	54,170	45,268	50,500
St. John	53,701	53,675	61,976	60,594	62,745	59,066	104,636	108,766	67,522	85,100
West Creek	4,981	4,981	5,727	5,707	5,900	5,363	10,291	9,293	6,244	8,900
Winfield	6,878	6,878	8,836	8,882	9,045	8,212	22,245	20,241	10,362	17,000
Boone	5,884	5,884	6,397	6,268	6,434	6,124	8,630	9,278	6,634	8,000
Center (Porter)	38,186	38,290	40,250	39,981	40,538	41,714	49,335	54,432	43,289	49,600
Jackson	4,592	4,592	5,097	5,361	5,599	4,820	10,741	10,725	5,811	9,100
Liberty	6,727	6,727	7,582	7,519	7,734	8,426	12,231	11,574	9,191	11,400
Morgan	2,658	2,658	3,315	3,249	3,458	2,901	8,209	6,816	3,698	6,400
Pine	2,853	2,853	3,147	2,771	2,761	2,868	2,479	2,721	2,772	3,000
Pleasant	3,759	3,759	4,627	4,489	4,686	4,011	9,668	7,637	4,925	8,100
Portage	43,956	43,956	47,098	46,715	47,285	51,910	60,103	57,485	53,716	60,100
Porter	8,459	8,459	9,235	9,161	9,394	9,436	13,257	13,214	10,215	12,300
Union	8,166	8,166	8,789	8,710	8,902	9,108	11,820	11,936	9,679	11,000
Washington	3,425	3,321	4,092	4,025	4,132	4,270	7,655	6,066	5,010	6,300
Westchester	18,133	18,133	20,476	19,744	20,400	19,327	30,042	29,485	21,422	27,600
Study Area MCD's	151,472	151,446	172,280	169,293	174,239	166,617	281,284	270,576	187,518	237,700
Lake County	484,564	484,564	494,202	494,135	496,978	504,808	573,455	564,391	514,065	557,100
Porter County	146,798	146,798	160,105	157,993	161,323	164,915	224,170	221,371	176,363	212,900
Grand Total	631,362	631,362	654,307	652,128	658,301	669,723	797,626	785,762	690,428	770,000

Bold letters denote Indiana MCD's totally or almost totally within Study Area.

Table C.11 Lake and Porter Counties, Indiana, Household Trends and Forecasts

MCD Name	Households 2000 Census	Households 2000 NIRPC	Households 2006 Tetrad	Households 2007 Tetrad	Old (Pre- Illiana) NIRPC Households 2030	Households 2030 (Based on 2000-2007 Trend)	Hhd 2030 (Old NIRPC Rate Applied to 2007)	New NIRPC (Illiana) Households 2030
Calumet	48,006	47,975	47,201	46,969	52,066	43,717	50,010	47,000
Cedar Creek	3,737	3,767	4,234	4,346	4,103	7,137	4,640	5,900
Center (L)	9,684	9,670	11,065	11,493	11,500	20,175	13,126	16,600
Eagle Creek	659	641	878	929	705	2,871	999	1,900
Hanover	3,068	3,072	3,541	3,694	3,592	6,799	4,165	5,500
Hobart	14,994	14,982	15,987	16,003	16,033	19,821	16,857	18,300
North	63,496	63,551	62,489	62,198	65,688	58,117	63,795	62,200
Ross	14,753	14,755	16,090	16,357	17,373	22,960	18,539	20,600
St. John	19,206	19,216	22,162	22,985	22,751	41,472	26,162	33,000
West Creek	1,754	1,766	2,075	2,150	1,995	4,197	2,361	3,300
Winfield	2,232	2,230	2,964	3,028	2,858	8,249	3,662	6,000
Boone	2,191	2,186	2,395	2,459	2,387	3,593	2,631	3,100
Center (P)	14,721	14,747	15,822	16,067	17,065	21,418	17,970	20,100
Jackson	1,592	1,546	1,876	1,967	1,679	3,941	2,095	3,200
Liberty	2,516	2,504	2,878	2,962	3,367	5,064	3,717	4,500
Morgan	899	894	1,126	1,201	1,039	3,111	1,348	2,300
Pine	1,129	1,182	1,188	1,184	1,205	1,384	1,202	1,300
Pleasant	1,341	1,361	1,677	1,751	1,525	4,207	1,911	3,100
Portage	16,318	16,290	17,758	17,971	20,023	24,675	21,051	23,200
Porter	2,966	2,951	3,285	3,370	3,464	5,127	3,811	4,500
Union	2,803	2,782	3,051	3,118	3,353	4,424	3,598	4,000
Washington	1,233	1,178	1,478	1,517	1,761	2,998	2,065	2,500
Westchester	7,012	7,028	7,765	8,033	7,865	12,556	8,757	10,900
Study Area MCD's	55,093	55,117	63,009	64,982	64,877	113,861	73,654	92,800
Lake County	181,589	181,625	188,686	190,152	198,664	235,516	204,317	220,300
Porter County	54,721	54,649	60,299	61,600	64,733	92,498	70,153	82,700
Grand Total	236,310	236,274	248,985	251,752	263,397	328,014	274,470	303,000

Bold letters denote Indiana MCD's totally or almost totally within Study Area.

Table C.12 Lake and Porter Counties, Indiana, Employment Trends and Forecasts

MCD Name	Employment 2000 NIRPC[a]	Employment 2006 Tetrad[b]	Employment 2007 Tetrad[b]	20007 Employment to Household Ratio	Employment 2030 (Based on 2000-2007 Trend)	2030 Recommended Jobs Per Household	Illiana Employment Forecast 2030**
Calumet	42,852	48,835	51,148	1.09	60,059	1.33	62,500
Cedar Creek	3,251	2,991	2,894	0.67	2,510	0.68	4,000
Center (L)	10,222	12,066	12,503	1.09	28,964	1.27	21,000
Eagle Creek	158	583	629	0.68	45,495	1.26	2,400
Hanover	1,644	2,347	2,496	0.68	2,619	0.91	5,000
Hobart	9,339	11,744	12,885	0.81	34,846	0.77	14,000
North	79,006	78,611	78,534	1.26	45,775	1.29	80,000
Ross	38,433	40,231	40,472	2.47	17,711	3.16	65,000
St. John	13,855	20,847	22,229	0.97	40,664	1.12	37,000
West Creek	1,416	1,857	1,865	0.87	1,127	1.14	3,750
Winfield	1,145	1,880	1,861	0.61	7,589	1.08	6,500
Boone	872	1,787	1,756	0.71	2,287	0.84	2,600
Center (P)	23,821	26,765	30,136	1.88	73,178	2.12	42,600
Jackson	247	418	425	0.22	6	1.00	3,200
Liberty	287	1,365	1,274	0.43	2,016	0.67	3,000
Morgan	117	368	288	0.24	132	0.98	2,250
Pine	96	315	508	0.43	7	1.15	1,500
Pleasant	668	937	1,025	0.59	660	1.00	3,100
Portage	13,274	16,545	15,716	0.87	15,027	0.93	21,600
Porter	179	795	755	0.22	438	0.56	2,500
Union	415	1,179	1,085	0.35	433	0.63	2,500
Washington	2,293	4,013	4,678	3.08	11,996	3.20	8,000
Westchester	11,857	14,511	16,200	2.02	80,007	1.98	21,600
Study Area MCD's	70,124	82,802	84,949	1.31	146,679	1.56	144,650
Lake County	201,321	221,992	227,516	1.20	287,360	1.37	301,150
Porter County	54,126	68,998	73,846	1.20	186,186	1.38	114,450
Grand Total	255,447	290,990	301,362	1.20	473,546	1.37	415,600
Chicago CSA				1.57			

[a] Employment as defined by US Bureau of Labor Statistics (BLS). BLS jobs are fewer than BEA jobs.

[b] Employment as defined by Bureau of Economic Analysis (BEA). BEA jobs are more inclusive; includes the self employed, jobs held by part time students, and those in the underground economy.

Bold letters denote Indiana MCD's totally or almost totally within Study Area.

NIRPC Provision of TAZ Forecasts

The consultant forecast revisions and increases for Lake and Porter Counties were done at the MCD, or Township, level. This level is adequate and appropriate for the sketch planning process that the consultants were undertaking to estimate socio-economic impacts of the proposed Illiana Expressway.

However, a smaller and more-detailed forecast level is required as input to the travel demand model. The travel demand model supplies the travel times for baseline and build alternatives that are the inputs for the Sketch Plan Socio-Economic Impact Analyses.

As the regional agency responsible for comprehensive land use and transportation planning, NIRPC was best-equipped to allocate the agreed-upon 2030 township forecasts to the smaller Transportation Analysis Zones (TAZ) required for the travel demand model. NIRPC agreed to accelerate its 2030 forecast process to undertake this effort for the Illiana Expressway study.

TAZ Forecast Input to Travel Demand Model

After an approximate month of preparation, NIRPC provided the detailed TAZ estimates for the baseline 2030 forecast to the consultant team leader, Cambridge Systematics, for input to its combined travel demand model.